

University Hospital Commons

An Evolutionary Approach to Generative Relational Field Governance

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Abstract

This independent discussion paper proposes an evolutionary design approach to university hospital Commons understood as relational fields supporting heterogeneous and voluntary forms of value creation, collaborative development, circulation, and possible generative reproduction. Its design problem concerns the difference between making resources discoverable and making creative work actually feasible, and between disseminating an outcome and enabling its appropriate recognition, use, or further development. A Commons need not become a new school, innovation office, or central authority over participants' projects. Building on knowledge-commons research, evolutionary economics, infrastructure studies, peer production, and evolutionary governance theory, the paper examines viable seed practices, limited constitutive norms, professional resource configurations, proposals and feedback, creative trajectories, emergent cooperation, external circulation interfaces, institutional support, stewardship, and field co-evolution. Its proposed generative relational interpretation differentiates ontological suspension, historically effective relational arrangements, and the partial manifestations through which they can be studied. Six illustrative configurations and a prospective comparative protocol specify how one could test whether a proposed field adds feasible and appropriately authorised creative opportunities beyond credible existing alternatives, while accounting for opportunity losses, unequal burdens, autonomy, rights, and maintenance costs. The protocol separates improved interpretation of records from actual effects on creative capabilities. Evolutionary persistence is not treated as normative legitimacy, attention as validation, or support as permission for clinical practice. The analysis is conceptual, the examples hypothetical, and all comparative tests prospective; no institutional implementation, patient-data access, clinical intervention, or empirical superiority is claimed.

Keywords: university hospital commons; evolutionary field governance; generative relational theory; creative trajectories; value circulation; stewardship

Discussion Paper Note

This independent discussion paper examines a preliminary institutional design approach to university hospital Commons as possible, evolving relational arrangements. The term *university hospital* designates a class of institutions, not an implemented programme at a particular site. The paper does not represent the University of Tokyo Hospital or any other university, hospital, volunteer service, patient organisation, public authority, or funding agency, and it claims no sponsorship, operational permission, or institutional endorsement. Its education, robotics, software, community, artistic, volunteer, and circulation scenarios are illustrative designs, not reports of actual implementation.

The inquiry is conceptual and design-oriented. Its analytical records, comparison procedures, and proposed tests have not been validated in a live hospital. It reports no participant recruitment, interviews, patient-data access, clinical intervention, robot deployment, funding award, institutional adoption, or demonstrated causal effect. The author's earlier independent paper on university hospital Volunteer Commons is a conceptual predecessor, not empirical evidence supporting the present design. Any eventual research with people or protected information, and any operational activity, would require separate permissions and review appropriate to its actual setting.

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Evidence and proposed experiments. The manuscript contains hypothetical design examples rather than observed hospital data. Neither simulated performance nor the repetition of an informal practice can establish safety, legal permission, normative legitimacy, or the effectiveness of a real institutional intervention. Rights, autonomy, privacy, resource costs, and the competence of actual decision-makers remain independent conditions requiring verification in their proper contexts.

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Introduction

A university hospital occupies a distinctive but internally heterogeneous institutional environment. Clinical care, professional education, independent scholarship, technical development, volunteer service, and public engagement may be situated near one another without thereby becoming a single practice. They involve different responsibilities, time horizons, resource constraints, authorities, and methods of recognising what matters. A student may develop a robotics prototype without holding any authority to introduce it into a clinical environment. A volunteer may identify a difficulty in orientation materials without wishing to become a researcher or an unpaid process improvement worker. A scholar of education may develop a reusable learning method with intellectual significance that is not yet useful to a hospital. A patient or family member may possess valuable experiential knowledge while having sound reasons not to disclose it. The proximity of these activities creates possible connections, but it does not itself supply consent, recognition, resources, or a reason to collaborate.

The substantive design question is consequently narrower than whether the institution should acquire another innovation platform. It concerns which particular activity remains infeasible under currently available support, which permissible interface would remove that constraint, and which additional work or risks the interface would create for others. In this sense, a negative decision to build may be a successful result of the analysis; it does not imply indifference to the underlying public problem.

The present paper studies a possible *university hospital Commons* as an evolving configuration of conditions under which heterogeneous persons and institutions may initiate, pursue, share, redirect, or discontinue legitimate value-creating activities. The Commons is not defined as an additional school, a standing innovation office, a comprehensive repository, or a volunteer recruitment apparatus. Nor is it constituted merely by making resources visible. An individual may discover a useful resource yet remain unable to modify it, experiment with an idea, preserve successive versions, reach a relevant evaluator, or obtain support to continue. A proposal forum may receive many suggestions without creating a reason for anyone to investigate them. A repository may preserve a design without providing any route through which its possible value can be recognised outside the originating setting. These distinctions motivate an inquiry into *generative field infrastructure*: the material, informational, relational, procedural, and normative conditions that may sustain creative trajectories and their possible circulation beyond a single institution.

Consider an illustrative student who conceives a robot intended to assist with the transport of non-clinical materials. The initial thought need not be part of an approved hospital project. It may be developed through public technical knowledge and synthetic simulation, documented as code and drawings, revised by others, or abandoned as impractical. Later, a university laboratory might find a research question in the design, an educator might adapt the prototype for teaching, or an external organisation might recognise a non-clinical application. None of these trajectories requires the hospital to be the sole beneficiary or evaluator. Conversely, a potentially relevant robot cannot enter clinical operations merely because its source code is public or a collaboration has attracted attention. Its possible movement between activities engages separate responsibilities for access, safety, intellectual-property rights, experimentation, institutional admission, and actual deployment. The example illustrates a design problem, not a reported project or a forecast of likely adoption.

A second problem concerns the formation of contributions themselves. It is possible to establish an issue tracker, a proposal submission form, or a research resource catalogue while leaving unanswered why anyone would use it. Voluntary contributors have heterogeneous motivations and opportunities; existing obligations may already consume their time, and persons can derive meaning from participation without undertaking any additional public work. Research on the functional diversity of volunteering (Clary et al., 1998), self-determination and autonomous motivation (Deci and Ryan, 2000), and commons-based peer production (Benkler, 2002; Benkler and Nissenbaum, 2006) offers distinct explanations for why some people contribute in particular settings. Those accounts do not imply that such motivations transfer intact to a university hospital. In this paper, a Commons should ordinarily enable people to pursue projects for which they already have reasons, while preserving opportunities for new reasons

and cooperative relations to emerge. The design should not require a volunteer to contribute beyond an agreed service role, or condition ordinary respect or legitimate institutional entitlements on creative output.

A third problem concerns the *circulation* of value. Creation, a recognisable artifact, public dissemination, uptake, institutional recognition, material return, and the reproduction of future capacities are related but distinct occurrences. A teaching method might acquire value in a different school; an engineering prototype may be evaluated by a department outside the hospital; a community practice may be taken up by a civic organisation. Distribution of code or a document does not entail that its possible value has been understood. An external endorsement does not entail scientific validity, funding eligibility, or a right to operate in the hospital. Financial support or public attention does not necessarily return to those bearing the maintenance burden. Accordingly, circulation paths are not conceived as a centrally managed ladder from a volunteer to a hospital, then to a university, and ultimately to a funding agency. They are heterogeneous, reversible, sometimes discontinuous relations among creators, audiences, evaluators, intermediaries, potential users, and resource stewards. The Commons may help make suitable paths discoverable and negotiable without claiming control over every path or requiring value to return to its origin.

These concerns differ from the main analytical task of the preceding study, *University Hospital Volunteer Commons: Institutional Mediation, Relational Proximity, and Generative Value Circulation* (Huang, 2026). That study developed a constitutive account of candidate infrastructure functions, the boundaries between independently accessible inquiry and authorised hospital activities, and typed temporal distinctions among permissions, evidence, uptake, and future capacity. The present inquiry does not reproduce its fifteen-function inventory or presume that more functions produce better outcomes. It instead investigates the *initialisation and possible evolution* of a field that can support multiple kinds of value creation and circulation, including practices outside formal research or hospital service. The first study supplies conceptual constraints, not empirical confirmation of the second study's design.

The wider scholarship already provides substantial resources for this problem. Ostrom's research investigates how institutional arrangements and rule formation vary with collective-action conditions (Ostrom, 1990, 2005). The knowledge-commons framework explicitly studies governed sharing and production across different knowledge settings (Frischmann et al., 2014a). Research on infrastructure emphasises its dependence on situated practices rather than isolated technical functionality (Star and Ruhleder, 1996). Evolutionary economics analyses routines, variation, learning, and selection (Nelson and Winter, 1982); evolutionary governance theory studies the co-evolution of actors, institutions, and knowledge or expertise (van Assche et al., 2014). These are established arguments that this paper draws upon, rather than new phenomena attributed to its own formulation. The paper does not claim priority for commons governance, evolutionary selection, peer production, institutional co-evolution, value co-creation, or infrastructure-mediated collaboration. The proposed generative relational interpretation instead combines a narrower set of questions: how initially feasible practices and support conditions affect heterogeneous creative trajectories; how circulation paths interact with scoped recognition and permission; and how contributors' and maintainers' feasible future activities may diverge. The integrated framing, partial record signatures, and comparative tests are author-proposed analytical extensions. Whether they outperform existing institutional analysis or simpler tools remains open; a new notation is not evidence of novelty or effect.

The word *evolutionary* is used in a restricted analytical sense. It describes possible variation in practices, selective continuation and abandonment, institutional retention, and feedback that alters future conditions. The metaphor of an initial population in evolutionary computation is productive only if the units are correctly identified. Persons are not candidate solutions to be culled; rather, tentative practices, interface arrangements, resource combinations, and proposed rules may be compared and revised under independently justified constraints. Repeated behaviour does not by itself establish a norm's moral or legal standing. A stable arrangement may reflect asymmetrical power, exhausted volunteers, or the absence of alternatives. Selection and success therefore require contextual evaluation, not a single fitness function maximising submissions, participation hours, patents, or citations.

The expression *generative relational field governance* denotes the paper’s preliminary approach to stewardship of enabling conditions and legitimate boundaries while leaving the content of future creations and collaborations partially open. It does not name a validated governance school or a claim that one can govern the emergence of value as such. A field in this usage is neither a physical field nor a substitute for existing institutional competences. It is a historically situated set of possible and effective relationships among subjects, resources, practices, infrastructures, normative rules, and external pathways. Governance concerns who may change those conditions, under what justifications, with what resources, and how the resulting activities remain contestable and revisable. Some field functions may be carried by existing libraries, departments, professional communities, independent repositories, ordinary service channels, or temporary cooperation. Establishing a new organisation is one contingent option rather than a design requirement.

The principal research question is thus: under what initial institutional, relational, material, and normative conditions could a university hospital Commons enable diverse and voluntary creative trajectories, facilitate the recognition and circulation of heterogeneous forms of value, and evolve its own supporting infrastructure without predetermining participants’ purposes or appropriating the authority of existing institutions? This question has several connected dimensions. How should viable initial practices and minimal constitutive norms be selected without prematurely closing off future possibilities? What distinguishes a resource-access function from the capability to undertake actual creative work? How might ideas, code, documents, service practices, designs, and physical artifacts continue to develop across changing contributor groups? What makes external circulation pathways accessible without implying automatic endorsement? When does a stable emergent practice merit institutional recognition or additional resources, and when should it be allowed to contract or disappear? How can claims about generative gains be distinguished from the burdens incurred to maintain them?

Methodologically, the paper develops a preliminary design-oriented *analytical proposal*. It employs generative relational theory at three levels: the ultimate ontological status of social or normative beings is left open; historically conditioned relationships and capacities are treated as the objects of relational analysis; and situated traces, interpretations, measurements, and reports are treated as partial manifestations requiring critical evaluation. The inquiry compares candidate configurations and hypothetical scenarios rather than claiming to report a live hospital Commons, recruitment programme, volunteer intervention, or human-participant study. Normative requirements such as valid permission, free assent, and patient protection are constraints on potential experimentation, not effects to be inferred from simulated performance. Competing explanations and simpler institutional alternatives remain eligible to outperform the proposed framework.

The manuscript develops the institutional setting and design objectives in Section 1, then specifies the generative relational foundations, heterogeneous subjects and motivations, and the conditions under which value is recognised. Its central analytical movement examines Commons initialisation, creation-supporting infrastructure, proposal and feedback relations, and the continuation of artifact and creative trajectories. Subsequent sections address emergent cooperation, value dissemination and circulation, external recognition and support, conditional access, and the reproduction of generative capacity. The final analytical sections concern evolutionary governance mechanisms, power and normative standing, historical adaptation, comparative configurations, and possible failures and tests. This sequence organises an argument; it does not prescribe a mandatory lifecycle for projects or a temporal hierarchy through which every contribution must pass.

1 University Hospital Commons: Institutional Context and Design Objectives

This section identifies the institutional environment in which an evolutionary Commons might be constituted and derives a first set of design objectives from that environment. Its purpose is not to infer a unique institutional form from the abstract category “university hospital.” Instead, it distinguishes

existing institutional capacities, autonomous practices, potential interfaces, and the limitations that any proposed Commons must respect. The discussion proceeds through the plurality of university-hospital activities, the analytical status of a relational field, differences among participation and authorisation, heterogeneous creation scenarios, and conditions for deciding whether a separate field infrastructure is justified.

1.1 University Hospitals as Plural Institutional Environments

University-affiliated hospitals are commonly situated in overlapping systems of healthcare provision, professional training, disciplinary research, public administration, funding, and professional accountability. The degree and manner of integration vary across countries, institutional histories, legal forms, and organisational arrangements. For present purposes, the relevant observation is structural rather than jurisdiction-specific: the same physical or organisational setting can contain activities governed by quite different purposes and competent authorities. Clinical treatment, clinical education, non-clinical academic inquiry, a student-led prototype, and volunteer assistance do not become the same activity because they occur near one another. Nor does a single institutional label settle rights to clinical premises, patient information, staff time, equipment, or the fruits of independent intellectual labour.

The diversity matters for both the promise and the limits of a Commons. Potential proximity may lower the difficulty of encountering a new question, discussing it with someone of another discipline, or understanding how a seemingly local practice relates to wider social problems. Yet proximity can also obscure the distinction between *being aware of a problem* and *being entitled to intervene*. A researcher's capacity to investigate a publicly described problem does not establish eligibility to observe a ward. A volunteer's approved presence for a service role does not establish permission to collect research data. A physician's professional judgement about a possible improvement does not automatically make an external collaborator's technical artifact suitable for clinical use. The relevant interfaces therefore need activity-specific competence, not a blanket "Commons membership" that dissolves established responsibilities.

The institutional setting also includes resources that already exist outside a hospital. University libraries, open educational materials, public software repositories, professional associations, laboratories, research archives, civic organisations, and independent study groups may already satisfy important functions. The institutional engineering question is not whether the Commons can reproduce them, but whether a particular unmet need requires a new connection, maintained access relation, or experimental capacity. In infrastructure studies, usefulness is inseparable from local practices and from relations to other infrastructural arrangements (Star and Ruhleder, 1996). A catalogue providing links to available public resources may sometimes be adequate. Elsewhere the missing condition may be permission to experiment with a reusable dataset, a physical workspace, a willing interlocutor, a route to a relevant professional evaluator, or a means of continuing an artifact after its initial contributor has departed. The design should specify which of these lacks are evidenced before proposing an additional platform or governance body.

The Commons may have participants whose meaningful activities extend beyond any institution's own mission. This possibility is particularly significant when a creative trajectory originates in a hospital environment but is later recognised elsewhere. A robotics concept might yield a pedagogical simulation rather than an operational hospital device. A service-orientation observation might inform general accessibility research, or an artist might produce a work whose value is recognised in a community outside healthcare. These outcomes cannot be ranked by a single hospital-specific measure without introducing substantive normative choices. The present study therefore regards the hospital as a context with distinctive constraints and possible connections, not the owner of all value generated near it.

1.2 The Institutional Field as a Configurable Set of Conditions

The term *field* describes the conditions under which particular kinds of interactions and practices are possible, not an already incorporated organisation or a container that owns everything occurring within

it. For a specified context c and time t , an exploratory field description may be written as

$$\mathcal{F}_{c,t} = (\mathcal{S}_{c,t}, \mathcal{P}_{c,t}, \mathcal{R}_{c,t}, \mathcal{I}_{c,t}, \mathcal{N}_{c,t}, \mathcal{H}_{c,t}), \quad (1)$$

where $\mathcal{S}$ denotes relevant subjects and their situated capacities, $\mathcal{P}$ the practices that may be undertaken, $\mathcal{R}$ the resources and available means, $\mathcal{I}$ the interfaces through which activities may become connected, $\mathcal{N}$ the applicable constraints and revisable rules, and $\mathcal{H}$ the recoverable aspects of prior relations and decisions. The notation is a bookkeeping vocabulary for analytical comparison. It is not a claim that the components are measurable sets in every setting, that their members can be exhaustively inventoried, or that a social field is fully determined by a six-tuple. In particular, unknown capabilities, excluded subjects, informal relations, and historical losses are relevant limitations of any such description.

An initial field should support some already feasible practices without requiring participants to endorse a complete theory of public value. At the same time, its interfaces should leave room for practices not yet envisaged by designers. This yields an important distinction between *initial constitution* and *final specification*. An initial constitution may identify who maintains a public knowledge index, how a permitted prototype may be documented, how participants can contest a description of their contribution, and who assesses requests involving protected institutional resources. It need not decide whether the Commons will eventually contain robotics collaborations, educational experiments, artistic works, community networks, or some as-yet-unidentified form of activity. A stable platform can support an unstable and evolving portfolio of practices, provided its own maintenance and authority remain intelligible.

This account is informed by, but not identical to, the governance literatures from which it borrows. Ostrom’s institutional research examines rule configurations and collective-choice arrangements in relation to their social and material conditions (Ostrom, 1990, 2005). The knowledge-commons framework adapts institutional analysis to governed sharing and knowledge creation (Frischmann et al., 2014a). Evolutionary governance theory studies changes in configurations of actors, institutions, and expertise (van Assche et al., 2014). The present field description is a preliminary synthesis oriented to enabling heterogeneous creative trajectories and to studying the external paths through which their value might become visible, contested, used, or supported. The proposal requires comparison with those prior accounts before its independent contribution could be established.

1.3 Participation Domains and Independent Sources of Authority

For clarity, the proposed field distinguishes at least three activity domains. The first consists of independently permissible inquiry and creation, including lawful uses of public information, individually owned materials, licensed tools, and clearly synthetic examples. The second consists of actual hospital service, access, or operational collaboration requiring the specific institution’s approval. The third consists of research involving people, identifiable information, restricted data, or other resources for which the applicable ethics, legal, contractual, and institutional regimes may require separate review. Other domains can be added where the relevant setting justifies them. These divisions concern authority and material practice; they do not imply that every jurisdiction uses identical legal categories.

A single individual may move between domains over time, but that movement is not made valid by a general role called “contributor.” Independent publication does not confer hospital entry rights. Approval to perform a volunteer task does not confer permission to interview patients for research. A successful synthetic demonstration does not certify the safety of a physical device. Conversely, a person may be able to conduct legitimate research without having any hospital-affiliated status. This separation protects both independent initiative and the competences of institutions responsible for care and research oversight. Where an external path is proposed, such as contact with a university laboratory, professional organisation, industry partner, or public research funder, its decision process likewise remains independent. The Commons may facilitate contact and prepare contextual information but cannot award another institution’s recognition, grants, licences, or permissions.

Voluntariness requires an additional separation between *existing duties* and *optional creative activities*. A service role may include routine, repetitive, and indispensable work; the worker or volunteer

who performs it need not develop a project or create a public artifact. Field infrastructure may make it convenient to share an optional observation, but participation in that infrastructure should not become a hidden performance requirement. The same applies to employees whose employment relations already determine duties and compensation. No proposed sharing mechanism should be used to displace competent professional work onto unremunerated contributors merely because a Commons gives it an attractive description. Research on varied volunteer motivations and the conditions of autonomous engagement is relevant here (Clary et al., 1998; Deci and Ryan, 2000); the present proposal does not infer any particular person's motivation from a role label.

1.4 Heterogeneous Creative Trajectories and Institutional Needs

The appropriate unit of infrastructure support is not always a department, project, or deposited document. A possible creative trajectory may begin as an unstructured observation, develop into several competing proposals, produce successive designs or code versions, be adopted in another context, and later acquire a significance that the original creator could not have anticipated. A document, prototype, educational exercise, or social practice can also cease to be useful, be withdrawn, or become inappropriate after a change in circumstances. An infrastructure that registers only approved projects and final deliverables will lose much of this history. An infrastructure that records every passing thought, by contrast, could impose unreasonable burdens and threaten privacy. The design problem is to preserve selected, consented, appropriately scoped aspects of trajectories when that preservation is useful, lawful, and proportionate.

A hypothetical educational inquiry illustrates the distinction. A scholar studying adult learning might already have a theoretically grounded question and the capacity to work with public educational materials. A Commons need not persuade the scholar to propose a hospital-specific problem. It might instead make a lawful simulated learning environment available, offer a public exchange in which professional educators can voluntarily discuss relevant issues, and provide versionable artifacts suitable for later use. If hospital educational staff find a genuinely overlapping need, a separate collaboration can be considered. If they do not, the scholarship may still have intellectual and educational value beyond that institution. The value of the initial Commons contribution lies in enabling possible work and connections, not in directing every creative act to a local operational deliverable.

The robot illustration poses different demands. Code and simulation may be shareable through ordinary technical repositories; a physical prototype requires materials, workshop capacity, maintenance, and safety arrangements. An emerging team may need design review, intellectual-property clarification, engineering feedback, or an introduction to an eligible funding opportunity. These needs may not exist at inception and may arise only if a development trajectory persists. Thus a sensible initial field need not own a machine shop, a technology-transfer office, and a research incubator. It should be able to discover when a suitable external arrangement exists and when a proposed new capacity has an adequate reason, steward, and financial basis. The same conditional logic applies to artistic projects, service methods, community initiatives, and other forms of value that are not reducible to research publications.

Value circulation presents another possible missing link. A creator can produce a usable artifact without reaching those who might understand it, assess it, adapt it, or make resources available for further work. A field might therefore support several distinct relations: dissemination to a specified audience; translation of a result into a form another profession can examine; optional referral to an institution with the relevant competence; and the recording of subsequent reuse or feedback when this can be done appropriately. None establishes a duty of uptake. The existence of a dissemination channel does not mean an outcome is beneficial; a review record does not mean a funding decision is favourable; and a grant or new collaboration does not prove that all contributors have received an equitable return. These remain separate questions of recognition, realisation, rights, and the historical distribution of gains and burdens.

Table 1: Illustrative creative trajectories and different possible Commons interfaces. The examples identify design questions, not observed outcomes or institutional commitments.

Practice	Possible missing condition	Conditional infrastructure response
Adult education inquiry	Appropriate practice examples and a context for testing a teaching idea	Public or licensed learning materials, synthetic cases, optional dialogue with competent educators
Student robotics	Iterative development means, material support, and an appropriate evaluator	Versioned designs, links to external tools, opt-in technical review and resource pathways
Volunteer service feedback	A voluntary and non-punitive way to express an observation	Scoped feedback channel separated from duties, with appropriate handling and no promise of adoption
Community or artistic practice	A willing audience, suitable venue, and means of preservation	Consent-based presentation opportunities, rights-aware archival or external-community links
Interdisciplinary method	Translation between distinct terms of evaluation	Contextual descriptions, contact with relevant expertise, recoverable critical responses

1.5 Design Objectives and Conditions for Institutional Restraint

The preceding analysis suggests several provisional objectives for the field. First, it should make some meaningful creative activity feasible for initial participants without requiring a prior commitment to produce public value. Second, it should allow participants to initiate, modify, share, or end creative trajectories within the bounds of their legitimate rights and responsibilities. Third, it should support appropriate dissemination and cross-context connections while leaving professional evaluation and institutional decisions with the persons and bodies competent to make them. Fourth, it should maintain only those shared resources and histories whose continuation has an intelligible purpose and a sustainable steward. Fifth, it should preserve opportunities for unanticipated practices without making constant expansion, measurement, or contribution an obligation.

These objectives can conflict. Broad visibility may increase opportunities for collaboration but also expose sensitive ideas or personal information. Persistent storage can support historical recoverability while increasing security and maintenance burdens. Open-ended participation can diversify practice but complicate responsibilities where regulated activities are involved. Reusable infrastructure may reduce duplication but become a new point of institutional dependence. Consequently the design should not seek a single maximum of “generativity.” It should compare situated advantages, disadvantages, permissions, and distributive effects, and permit legitimate refusal, non-adoption, revision, and withdrawal.

A critical possibility is that no new Commons infrastructure is necessary. A scholar using existing university libraries, public software tools, and a conventional research group may already be able to conduct and disseminate the proposed work. A volunteer service may already have a competent and trusted feedback mechanism. A university technology-transfer office may already provide appropriate guidance on a student’s invention. In such cases, the relevant contribution of Commons design could be limited to an accurate pointer to the existing arrangement, or even to recognising that no intervention is justified. The burden of justification rests with the proposed addition. Its potential benefits should be compared with ordinary practices, including the often invisible labour required to maintain a new interface (Star and Ruhleder, 1996; Star and Strauss, 1999).

Where a new capability does appear warranted, the initial arrangement should be proportionate. An optional public issue board may be useful, but its presence does not entail a requirement to respond to every proposal. A versioned collaborative repository may assist development, but its maintenance and rights conditions must be specified. A referral interface may help contributors find an external audience, but it does not confer special access to a funding agency. An institutionally restricted facility may be reachable for eligible activities, yet no general Commons affiliation should bypass independent approval.

These are different kinds of connections, and their combination must remain conditional.

1.6 Initial Conditions and the Revision of the Field

Evolutionary design gives the initial arrangement a special role without claiming that designers can know the final outcome. A useful initial configuration contains viable seed practices, heterogeneous capabilities, some legitimately accessible resources, a minimal framework for voluntary interaction, and a means of learning which interfaces are genuinely used. The seed practices need not be representative of all future disciplines or occupations; they should nevertheless avoid equating the needs of the first, most visible participants with those of the wider relevant population. People who cannot easily contribute an articulate proposal, have limited free time, or face asymmetrical professional authority may otherwise remain invisible to the field's selection processes.

The choice of initial conditions also affects the rules by which practices are retained. Evolutionary economics locates an important part of organisational continuity in routines and selective learning (Nelson and Winter, 1982); evolutionary governance theory emphasises the co-development of actors, institutions, and forms of knowledge (van Assche et al., 2014). In the proposed Commons, practices that prove useful may generate requests for additional tools, different information structures, new review relationships, or new stewardship roles. An unused facility may be retired; a simple external link may become a standing relationship; a contested norm may be revised. Such changes need not be interpreted as progress. An arrangement may stabilise because it advantages powerful participants, or because the costs of exit are high. Evolutionary persistence is an observation to be explained, not a sufficient justification for continuation.

The resulting design task is deliberately narrower than constructing an entire institution in advance. It begins with a small, credible setting in which heterogeneous practices can take place, while retaining legitimate constraints and means of critical revision. Whether creative trajectories and value-circulation paths will actually emerge, and whether any additional institutional complexity is warranted, remain empirical and normative questions. The following chapter will develop the generative relational account of these questions, including the difference between a field's proposed capacities and the limited evidence through which participants and analysts can come to know them.

2 Generative Relational Foundations of Evolutionary Field Governance

This section establishes the conceptual and analytical foundations for the proposed evolutionary field governance approach. Its object is not a self-contained institution whose final structure can be specified in advance, but the historically conditioned relations through which persons, practices, artifacts, resources, and institutional competences may enable or constrain subsequent action. The section first clarifies the three levels of generative relational (GR) analysis, then specifies a deliberately partial vocabulary for field relations and creative capability. It examines the formation and recognition of heterogeneous value, distinguishes governance of enabling conditions from control over participants' creative ends, and formulates the mutual conditioning of field arrangements and actual practice. Illustrative cases and rival explanations keep the formal vocabulary answerable to practical institutional problems rather than treating it as a complete description of social reality.

2.1 Three Levels of Reality and the Status of Relational Claims

The present inquiry employs three analytical levels that should remain explicitly distinguishable even when the same phenomenon appears across them. At the first level, the ultimate ontological status of a subject, value, norm, creative possibility, or institutional relation is left *suspended*. Such suspension neither denies the existence of persons and institutions nor licenses arbitrary descriptions of them. It declines to derive the social efficacy of an institution from an unsupported claim about its final metaphysical nature. A relationship can have practical consequences without the inquiry first deciding whether its most

Table 2: Three GR analytical levels as applied to a Commons field. The examples identify different questions, not stages that every contribution must pass through or facts established in an operating hospital.

Analytical level	Primary question	Illustrative treatment of a robotics idea
Ontological status suspended	What can responsibly be left open about the ultimate nature of value, agency, and institutional existence?	No final metaphysical conclusion is drawn from the student’s idea or its possible later recognition.
Relational reality	Which historically effective capacities, dependencies, and constraints condition what may occur?	Skills, available tools, collaborators, resources, permissions, and responsibilities may make some development possible and other development infeasible.
Manifestation reality	Through which situated evidence and interpretations are those conditions presented and judged?	Drawings, code revisions, a workshop demonstration, feedback, and approval records reveal different, incomplete aspects of the trajectory.

fundamental being is individual, collective, material, symbolic, or otherwise constituted.

At the second level, *relational reality* denotes historically constituted subjects, structures, and capacities insofar as they possess sufficient stability and efficacy to condition possible action. A trusted collaboration, an accessible research instrument, an enforceable permission, a jointly understood method, or a routinely available technical service may change what an actor can in fact do. Their reality in this analysis concerns their effective relations and historical conditioning, not the mere fact that an observer has assigned them a label. Social efficacy may be uneven, contested, and difficult to isolate causally. Nevertheless, it is distinct from the observer’s description of it.

At the third level, *manifestation reality* concerns how those relations become accessible through artifacts, statements, observations, records, measures, interpretations, and situated experience. A software repository, for example, exposes some versions, discussions, contributors, and changes. It may not expose tacit learning, discouragement, unrecorded maintenance, prior exclusions, abandoned designs, or negotiations performed elsewhere. A participant’s proposal is a manifestation of a stated idea, not conclusive evidence of its technical feasibility or its value to a particular audience. An approval document may be evidence concerning an institutional decision, but whether a contemplated activity is actually within its scope depends on the document, its provenance, the relevant institutional authority, and any other applicable conditions. Manifestation is neither fictitious nor exhaustive.

This separation has methodological consequences. The mere appearance of activity on a platform is not a direct measurement of the field’s *generativity*. Conversely, absence from its records does not establish that no relevant creative relation exists. The approach therefore calls for triangulation where feasible, attention to absences and access barriers, and cautious inference from visible traces. Classification systems and infrastructural arrangements themselves shape what becomes legible (Bowker and Star, 1999; Star and Ruhleder, 1996). The three-level account is the author’s preliminary GR reconstruction for the present inquiry. It is not attributed to that established literature, nor is it offered here as an empirically proven ontology.

2.2 Field Relations, Conditions, and Situated Creative Capability

The field description in Equation (1) provides a vocabulary of subjects, practices, resources, interfaces, normative conditions, and history. A further distinction is needed between *having a resource listed*, *being entitled and able to use it*, and *being able to conduct a meaningful creative activity with it*. These three claims can differ even for an apparently open facility. A publicly indexed simulation environment may be unusable without adequate computation, relevant knowledge, time, or assistance. An available physical workshop may be unsuitable for a proposed prototype. An appropriately qualified person’s practical access may be limited by scheduling or the costs of participation.

To clarify the difference without asserting a universal calculus of value, let c indicate the activity context, t its relevant time, s a subject, p a proposed practice, and r a resource. Consider three relations: $\text{Visible}_{c,t}(s, r)$ (the subject can discover an adequate description of the resource), $\text{Usable}_{c,t}(s, r, p)$ (use for the specified practice is permitted and feasible under the relevant conditions), and $\text{Feasible}_{c,t}(s, p)$ (the subject possesses, or can legitimately obtain, a sufficient combination of means to undertake the practice). These are *candidate relations to investigate*, not automatically computable truth values. In particular, being listed does not prove practical access, and practical access to one resource does not settle the feasibility of an entire creative process:

$$\text{Visible}_{c,t}(s, r) \not\Rightarrow \text{Usable}_{c,t}(s, r, p), \quad \text{Usable}_{c,t}(s, r, p) \not\Rightarrow \text{Feasible}_{c,t}(s, p). \quad (2)$$

Here the crossed implications express the absence of a general logical entailment; they do not report empirical failure in every instance. An institution can in practice make both usability and feasibility more likely by supplying appropriate equipment, peer support, training, and continuity, but the causal contribution of those arrangements remains to be established.

A field can also enable practices whose eventual artifacts were not part of its initial plan. A researcher in education might pursue a question about adult learning using synthetic examples, public materials, and voluntary academic dialogue. Another person might independently develop a robotics simulation or a community arts initiative. Their activities can remain meaningful when no hospital department adopts the results. *Creative capability*, as used here, refers to an actor's situated ability to initiate, revise, and potentially continue a practice that the actor has reason to undertake. It is neither an unconditional entitlement to scarce institutional equipment nor evidence that the activity will produce recognised value. Nor does the description require the actor's goals to be collective or altruistic at the outset.

One may therefore examine a *conditional opportunity relation*, $\text{Opportunity}_{c,t}(s, p \mid \mathcal{F}_{c,t})$, meaning that the field supplies some conditions relevant to the practice. Whether those conditions are causally decisive requires a counterfactual comparison with what the actor could have done through ordinary university, civic, or public infrastructures. The relation is intentionally partial: many practices have indispensable means outside the Commons, and the Commons need not own or coordinate them. A genuinely enabling Commons may consist of a small number of appropriately maintained connections among existing resources. Infrastructural utility is relational and situated rather than merely an attribute of a technical platform (Star and Ruhleder, 1996).

2.3 Relational Value, Independent Recognition, and Circulation

The concept of value requires equal care. In a university hospital Commons, an artifact or practice may be relevant to several evaluative contexts that do not share an objective or standard. A student's robotics prototype may have educational significance even if unsuitable for clinical operations. A volunteer's observation may inform a service discussion without becoming scientific evidence. A teaching method may be of intellectual interest while imposing unacceptable costs if introduced into an existing training programme. An artwork may matter to its makers and audiences without being reducible to therapeutic effect. Value is not identical to money, attention, citations, formal adoption, or the number of recorded contributions.

Existing research already rejects an exclusively producer-centred account of public service value and attends to the service ecosystem in which value is experienced, jointly formed, or lost (Osborne et al., 2021, 2022). Generative justice also investigates the direction and circularity of value flows and the relations that determine who benefits (Eglash, 2016; Eglash et al., 2024). The present inquiry builds on these contributions rather than claiming to have introduced relational value formation. It asks a more specific design question: how can an evolving Commons provide accessible *paths* through which an artifact, action, or practice may be independently encountered, interpreted, evaluated, further developed, or used by different subjects, without requiring a central authority to determine all of its possible values?

For analytical clarity, consider a creative trajectory τ and a potential receiving context c' . The following descriptions concern different events: $\text{Disseminated}(\tau, c')$ indicates that some representation or

material has been made available through a path to that context; $\text{Encountered}(a, \tau, c')$ indicates access by an actor a ; $\text{Recognised}(a, \tau, v, c')$ indicates that a judges a particular value claim v significant under specified criteria; and $\text{Used}(a, \tau, p, c')$ indicates an actual, appropriately described use in practice p . The schema does not assume that all these events are public or observable, nor does it collapse professional judgement into a machine decision. In particular:

$$\begin{aligned} \text{Disseminated}(\tau, c') &\not\Rightarrow \exists a, v \text{ Recognised}(a, \tau, v, c'), \\ \text{Recognised}(a, \tau, v, c') &\not\Rightarrow \exists p \text{ Used}(a, \tau, p, c'). \end{aligned} \tag{3}$$

Such distinctions prevent an announcement, repost, citation, assessment, prize, or referral from silently acquiring the status of a validated outcome. In a hospital, independent approval for a regulated activity remains a separate question even when a relevant evaluator recognises an artifact's possible usefulness.

A circulation path may cross multiple institutions and branch into several trajectories. Dissemination can expose an artifact to an audience capable of recognising a previously unconsidered use; that recognition can yield critique, new questions, collaboration, resources, or independent work. An idea can also circulate without benefiting its initial contributor or returning to the Commons. For this reason, the field's role is not to capture every downstream benefit. Its candidate infrastructure functions include rights-aware description, legitimate contact, appropriate translation across professional languages, discoverable external pathways, feedback, and continuity of relevant creation histories. These are enabling conditions, not promises of uptake or reward. Broader relations among recognition, circulation, resource return, and long-term capability will be examined in the later chapters specifically dedicated to those subjects.

2.4 Stewardship of Enabling Conditions and Institutional Competence

Field governance, as proposed here, is stewardship of the conditions under which heterogeneous activities may be initiated and connected. It is not central planning of their substantive ends. This distinction can be illustrated by the difference between maintaining a place where a student can describe a prototype and directing the student to develop a device for a particular clinical use. The former may facilitate voluntary expression; the latter may entail a formal project, supervision, resource obligations, and additional safety requirements. The difference is one of institutional relations and practical authority, not merely of interface design.

The proposed field may contain both *constitutive constraints* and *revisable conventions*. Constitutive constraints include the independently applicable law, permissions, professional responsibilities, privacy protections, research ethics, and conditions needed for safe use of shared resources. Their legal force does not arise from the Commons model. Some rules may be institution-specific, and their meaning must be determined by competent authorities in the governing setting. Revisable conventions may concern how willing participants organise discussions, describe contributions, document versions, or refer a proposal to an external body. These can evolve through experience and participation, provided the relevant participants have legitimate decision competence and the revision does not supersede binding obligations. A recurrent practice is evidence that something has become habitual, not sufficient proof that it is equitable, voluntary, clinically safe, or authorised.

A useful concept here is *activity-specific admission*. The field may permit independent discussion of a public problem while the same person's request for access to restricted data, a clinical area, a patient interview, a physical device test, or hospital operational involvement remains outside the scope of that discussion permission. Role, purpose, time, resource, consent, and the competent authority can differ across those activities. This distinction is not a design defect to be eliminated by a universal Commons credential. It protects participants and enables openness where openness is genuinely compatible with the activity in question.

Stewardship also concerns responsibility for maintaining infrastructure. Persistently storing designs may facilitate later reuse while incurring security, legal, financial, and labour burdens. Moderating a proposal channel may consume time even when no proposal merits implementation. Recording every

creative interaction may discourage participation or expose sensitive relations. A design should therefore allow partial records, appropriate confidentiality, deletion or restriction when justified, and the retirement of unnecessary functions. Infrastructural work often remains less visible than the activities it supports (Star and Strauss, 1999; Jackson, 2014). The Commons cannot evaluate generativity solely by looking at its publicly visible output while omitting the people and institutions bearing these costs.

A field’s design is also answerable to those who may have reasons not to participate. The fact that someone is physically present as a volunteer, patient, student, or staff member does not make that person’s time, experiential knowledge, or personal data a common resource. Contribution is not a concealed condition of receiving care, fulfilling a service role, or retaining ordinary dignity and rights. Although the later analysis will examine changing motivations, the initial field must provide for voluntary nonparticipation and legitimate exit. A responsible governance arrangement can provide an optional route for feedback while accepting that some people will never use it.

2.5 Evolutionary Co-Development of Practices and Field Conditions

Evolutionary economic and governance theories furnish important starting points for examining changes in this field. Nelson and Winter analyse routines, search, learning, and selection as elements of economic change (Nelson and Winter, 1982). Evolutionary governance theory explicitly studies the co-evolution of actors, institutions, and expertise, along with historical dependencies that condition the space for action (van Assche et al., 2014). Ostrom’s work studies institutional diversity and relationships among rules, participants, and action situations (Ostrom, 2005); the knowledge-commons framework provides structured inquiry into communities, resources, governance, and outcomes (Frischmann et al., 2014a). These literatures already contain accounts of endogenous institutional change and context dependence. The present GR synthesis is proposed as a complementary way to track the historical relations among evolving creative practices, infrastructural capacities, heterogeneous evaluations, and cross-context circulation. Its novelty cannot be assumed from naming those elements together.

The evolutionary analogy requires a careful identification of its units. Let $\mathcal{T}_{c,t}$ denote the partially identifiable population of *creative trajectories and practice arrangements* in context c at time t . Individual persons are not treated as fitness-bearing units that may be culled or ranked. A trajectory may contain artifact variants, repeated tasks, exploratory conversations, drafts, abandoned attempts, and cooperative routines. Practices and infrastructure can change one another: a group using a public repository may create a need for more reliable version preservation; a new archiving capability may later allow different groups to continue an old design; a developing physical prototype may create a legitimate demand for specialised safety review. Conversely, the availability of a dedicated proposal platform may generate administrative work without yielding new creative capability.

One exploratory representation of such mutual conditioning is

$$(\mathcal{F}_{c,t+1}, \mathcal{T}_{c,t+1}) \in \text{Evolve}_{c,t}(\mathcal{F}_{c,t}, \mathcal{T}_{c,t}; \mathcal{U}_{c,t}, \mathcal{J}_{c,t}, \mathcal{X}_{c,t}), \quad (4)$$

where $\mathcal{F}$ uses the partial field description introduced in Equation (1); $\mathcal{U}_{c,t}$ denotes the actions and responses of relevant subjects; $\mathcal{J}_{c,t}$ denotes institutionally competent judgments and constraints; and $\mathcal{X}_{c,t}$ denotes contextual changes and contingencies not controlled by the Commons. The symbol $\text{Evolve}_{c,t}$ names an *unspecified relation of possible, conditioned transitions*; it is not a fitted stochastic transition operator, predictive law, or normative optimiser. Membership of the pair on the left indicates an admissible candidate description for further investigation, not that the field can produce or license every such state. Appropriate types, measurable variables, and transition rules would need to be specified separately for any computational implementation.

The model also resists a single scalar fitness measure. Continued use of a practice may reflect usefulness, but it may also reflect professional hierarchy, exclusion, sunk costs, lack of alternatives, or the dependence of volunteers on institutional goodwill. An unpopular research method may be intellectually valuable while temporarily hard to communicate. A highly cited or well-funded artifact may displace unpaid maintenance onto a small number of participants. In evaluation, persistence, diffusion, acceptance, legitimacy, distributive burden, and future capacity are different dimensions requiring different

evidential and normative tests. Even a multi-objective scoring scheme cannot by itself decide whose values should count and who is authorised to impose a result. Participatory review and contestation may help reveal disputed objectives without replacing legal or professional obligations. Modelling guidance likewise cautions against making a simplified numerical representation stand in for the social judgments it cannot resolve (Saltelli et al., 2020).

2.6 Analytical Types and Cross-Chapter Inference Boundaries

The proposed field description and the later sector-specific records have several different *types*. A subject s is not a practice p ; a creative artifact o is not its development history; and a field configuration $\mathcal{F}_{c,t}$ is not an authorised institution. The practice collection $\Sigma_{c,t}$ used to characterise viable or active arrangements is distinct from the broader trajectory population $\mathcal{T}_{c,t}$, which may include suspended, discontinued, or independently continued work. The documentary corpus $\mathcal{D}_{c,t}$ is neither of those populations: it records some claims about them, according to a particular observer’s permissions and access. A change in meta-data may alter $\mathcal{D}$ without changing the practice it purports to describe. These distinctions constrain the evolutionary models developed in Chapters 5 and 13.

The manuscript also distinguishes *activity feasibility*, a claim that an activity is feasible, and *competent permission for that activity*. A proposed field can increase the first only if it changes the subject’s actual resources, knowledge, time, relationships, or legitimate scope of action. A record of available resources may change what an analyst knows without changing what anyone can do. The activity-specific feasible set $\Omega_{s,c,t}(\mathcal{F})$ introduced in Equation (7) is therefore a conceptual set of feasible and appropriately permitted activities, not a list of portal entitlements. Section 12.5 will use **Cap** as a name for this same kind of feasible set when asking how opportunities persist through time, rather than treating it as a second, independently measured stock of personal ability.

Finally, *compatibility of records* is weaker than *validity of an inference*. An expression about a robot can be linked to an artifact history, a circulation record, a funding application, and a later decision, but the link alone does not demonstrate causal creation, useful uptake, ownership, permission, or future capacity. Evidence must be attached to the particular claim and activity scope; a competent authority must separately decide matters reserved to it. The comparative dossiers in Chapters 16 and 17 are thus *typed questions for further investigation*, not a mandate to construct a centralised database or automated approval engine. This limited typing is useful only insofar as it prevents inferential errors that simpler institutional tools would otherwise make.

2.7 Epistemic Limits and Rival Institutional Explanations

The preceding definitions are useful only insofar as they sharpen questions and expose possible errors that simpler accounts might obscure. They must not become an inventory which makes ordinary cooperation look artificially complicated. The knowledge-commons framework already investigates resource characteristics, community attributes, governance rules, and patterns of production and sharing (Frischmann et al., 2014a,b). Existing university research offices, volunteer coordinators, public repositories, legal advisers, laboratories, and civic networks may already provide practical means for creation or dissemination. A proposal to add a new field-level interface should identify the particular condition it improves, who bears its cost, how it changes feasible actions, and how a less elaborate arrangement would perform. In some cases a link to the existing responsible service or the continuation of independent practice may be sufficient.

Consider three illustrative comparisons. In an education case, a scholar already has public teaching materials, open simulation software, and a professional community capable of evaluating the work. A Commons-branded research platform adds an account-creation step and mandatory reporting, but no appreciable learning or research capability. In that case the added platform is plausibly redundant, and the proposed framework should permit this outcome. In a second case, a willing student produces a robotics prototype, but the only available venue for seeking feedback is tied to an operational hospital improvement process. A lightweight external-facing channel that clearly separates technical inquiry from

Table 3: Illustrative discriminating cases for the proposed field account. The table gives analytical alternatives, not evaluated programme results.

Observation	Inference to investigate	Alternative explanation or limit
A proposal is published and receives responses	The field might have increased the discoverability of a creative question	The contributors may already have been connected; engagement does not prove practical feasibility or value
A design circulates to an external academic community	A new audience may provide useful recognition or criticism	Ordinary publishing infrastructure may explain circulation without any additional Commons effect
A workflow is repeatedly used	A stable practice relation may have emerged	Compliance pressure or lack of alternatives may account for persistence; frequency does not establish legitimacy
A prototype obtains additional resource support	Some subsequent development may have become feasible	Selection bias, institutional advantage, or pre-existing sponsor relationships may explain the support
A volunteer leaves while an artifact continues	A creative trajectory may outlast an individual's formal role	Continuity may depend on unrecognised maintenance or rights arrangements that remain contested

institutional implementation may remove a genuine barrier, without granting deployment permission. In a third case, a volunteer gives helpful feedback through an existing service channel and declines any further involvement. The Commons has no claim on that person's continuing labour, and an appropriate account of the outcome may be an ordinary service response rather than a new collaborative project.

These cases indicate why the relevant unit of analysis cannot be limited to project counts, platform engagement, or self-reported satisfaction. The analysis requires the temporal ordering of conditions, practice, observed changes, professional judgments, and resource effects. It should also ask which participants and unmet needs were not visible to the platform. A comparison must recognise selection into participation: the people already able to produce articulable proposals, manage documentation, or gain professional introductions may be precisely those least constrained before the intervention. Field design that neglects such differences can mistake unequal opportunities for a spontaneous meritocratic selection process.

The investigation thus remains simultaneously explanatory, normative, and design-oriented, but it does not collapse these modes. An explanatory account asks what relations may have generated observed practices. A normative inquiry asks which constraints, rights, and responsibilities are justified by competent sources and defensible reasons. A design comparison asks which feasible arrangement is worth establishing under resource constraints and uncertainty. Later comparative research could operationalise these questions through matched scenarios, process tracing, interviews subject to appropriate review, and comparisons with ordinary institutional practice (Yin, 2018; Pawson and Tilley, 1997). The present paper proposes such future tests; it does not claim their results.

2.8 Theoretical Scope and the Subsequent Analysis of Participation

The chapter's central proposal is a restricted one: a university hospital Commons may be examined as a historically evolving configuration of conditions that enables some heterogeneous practices, changes possible relations among them, and sometimes facilitates the circulation and further generation of value. This does not assume that the Commons owns the work, that every beneficial relation should be formalised, or that everyone encountering a resource ought to contribute. Many relevant relations may remain independent of both hospital and Commons organisations. Their boundaries and effects require case-specific evidence.

The next analytical question therefore concerns the subjects for whom these conditions could matter. An opportunity is not itself a motive; a technically usable platform does not supply free time, professional

interest, trust, or a reason to cooperate. The subsequent examination of heterogeneous subjects, motivations, and voluntary participation will ask how those differences condition entry, continued involvement, non-use, and exit. Such analysis is necessary before any evolutionary field account can plausibly infer that introducing an enabling infrastructure will result in creative contributions.

3 Heterogeneous Subjects, Motivations, and Voluntary Participation

This chapter examines participation as a historically conditioned relation between subjects, activities, available opportunities, and institutional constraints. Its purpose is to establish why an enabling field cannot infer willingness to contribute from the provision of resources, proximity to a public problem, or membership in an existing service organisation. The analysis distinguishes contracted or otherwise assigned duties from additional creative participation, independent inquiry, and the expression of experiential perspectives. It then considers plural motivations, unequal capacities to take advantage of an opportunity, the possible transformation of reasons for action through interaction, and circumstances in which nonparticipation or withdrawal is an appropriate result. The chapter uses established volunteer-motivation research, self-determination theory, participation studies, and the generative relational distinctions of Section 2. Its contribution is a preliminary way of relating those insights to an evolutionary Commons field, not a new universal theory of human motivation. The resulting design constraints inform later discussions of value recognition, field initialisation, and creative infrastructure; they do not by themselves specify a particular recruitment or governance system.

3.1 Participation Relations and the Plurality of Activities

A person does not participate in a university hospital Commons in exactly the same way simply because that person appears on a membership list, enters a physical space, or accesses a digital platform. A volunteer may perform an assigned orientation task, offer an optional suggestion about a training document, develop a software tool on personal time, and later publish an independent analysis. The four activities can differ in purpose, permission, beneficiaries, exposure to organisational direction, and claims over resultant artifacts. They need not belong to one administratively continuous project. Conversely, a contribution can be meaningfully connected to a Commons even when its creator has no formal hospital affiliation.

The distinction is material rather than merely terminological. The same individual can have simultaneously valid obligations and freedoms that pertain to different activities. A nurse’s agreed clinical responsibilities are not equivalent to volunteering to maintain a public repository. A student’s education requirement is not automatically a freely chosen research collaboration. A patient’s willingness to comment on a service experience does not amount to agreement to repeated research contact. A researcher may be interested in a published teaching method without consenting to review proposals, mentor contributors, or surrender intellectual-property rights. Hospital permission for one activity cannot be presumed to transfer across these relations; this limitation follows from the distinct activity domains considered in Section 1.3.

A proposed analytical record for a specific subject s , activity a , context c , and period t is

$$\text{Part}_{c,t}(s, a) = \langle \rho, \mu, \gamma, \kappa, \alpha, \epsilon \rangle_{s,a,c,t}, \quad (5)$$

where ρ denotes the activity-specific role, μ the manner of engagement (for example, agreed duty, optional collaboration, independent creation, or invited consultation), γ the subject’s articulated or otherwise cautiously inferred reasons and preferences, κ the relevant opportunities and constraints, α the state of applicable authorisation evidence, and ϵ the available ways of declining, limiting, or ending engagement. The tuple is a *partial, situated analytical record*. It is not a complete psychological description, a certification of consent, or a machine-readable legal permission. Entries may be unknown, contested, sensitive, or inapplicable. In particular, permission and voluntariness must be supported by their own appropriate processes and evidence: an investigator cannot declare them established by filling in α or ϵ .

Several further distinctions follow. Participation in the field is not the same as producing a public artifact; contributing an artifact is not the same as donating its rights; a publicly available artifact is not evidence of an obligation to maintain it. Indirectly benefiting from a Commons does not imply any duty to return a proportional contribution. The design of an open knowledge index may enable a scholar to pursue an independent question and never return to the platform. Such an outcome is not necessarily a failure if access and knowledge diffusion are among the legitimate purposes of the field. Whether the field may nonetheless afford the necessary maintenance depends on a separate resource question, rather than on retroactively characterising access as an unpaid service contract.

3.2 Diverse Reasons for Contribution and Continued Engagement

Theories of volunteer participation provide useful evidence against the assumption that contributions express one stable motive. The functional approach developed by Clary et al. (1998) identifies multiple functions that volunteering may serve, including values, understanding, social relationships, career-related interests, protective functions, and personal development. This classification should not be interpreted as a closed taxonomy capable of predicting each person's conduct. Research on sustained helping (Omoto and Snyder, 1995) and broader sociological accounts (Wilson, 2000; Hustinx et al., 2010) likewise indicate that duration, social context, organisational location, and personal circumstances matter. Some people undertake a task because they care about its beneficiaries; others value competence, friendship, creative expression, professional identity, reciprocity, or a particular problem. The same person can have mixed reasons that change over time.

Self-determination theory makes a distinct contribution. In its account of autonomy, competence, and relatedness, the social conditions surrounding an activity can support or impair the quality of motivation, even when outward participation is observed (Deci and Ryan, 2000). This should not be reduced to a formula asserting that every opportunity to learn will attract contributors. A task may support learning yet impose unaffordable time costs; a person may agree to help chiefly because refusing seems socially unsafe. Other frameworks highlight collective identity, social inequality, public institutions, and organisational histories that cannot be fully captured by a psychological inventory (Hustinx et al., 2010). For a university hospital field, motives should therefore be treated as plural explanatory candidates rather than as a required entry questionnaire or a fixed classification assigned to participants.

Some contributors may begin with private or profession-specific reasons. A student may want to learn robotics. An educator may seek new ways of representing situated learning. A volunteer may wish only to undertake an existing service task carefully. An artist may be concerned with an experience of place that is not a clinical outcome. A software engineer may wish to fix a tool on which independent work depends. In commons-based peer production, these partially independent motives can sometimes support a shared artifact without establishing a central hierarchy of assignments (Benkler, 2002; Benkler and Nissenbaum, 2006). Yet peer-production accounts do not demonstrate that time-sensitive healthcare operations, embodied work, or access to restricted information can be coordinated on the same terms as contributions to public code. Possible alignment of interests is an empirical and institutional question, not an entitlement to others' labour.

It is useful to distinguish a reason to begin from a reason to continue. Initial curiosity can give way to identification with a community, a new research question, or interest in a different use of an artifact. Equally, initial enthusiasm can turn into frustration when moderation is slow, credit is obscured, proposed work is appropriated without agreement, or collaboration imposes more responsibilities than expected. The field may help make such consequences intelligible, but it cannot guarantee that the motivation to contribute will be stable, additive, or publicly oriented. The absence of contribution should not be imputed to deficient character when participants have other obligations or legitimate preferences.

3.3 Heterogeneous Subjects and Asymmetrical Participation Conditions

The subject categories relevant to a university hospital are themselves historically situated and internally diverse. They include patients, family members, students, clinical staff, non-clinical personnel, profes-

sional educators, researchers, volunteers, civic organisations, independent creators, and other possible participants. Some can appear in more than one category at the same time. These categories are useful for examining different relationships to care, time, authority, and knowledge; they do not imply shared goals, common legal statuses across jurisdictions, or uniform interests within any group. The framework also permits study of AI-supported systems and non-human entities as possible components of creative or decision relations, without presuming that a software system holds the same consent rights, moral standing, or institutional responsibilities as a human participant. Those questions require separate arguments and applicable rules rather than metaphorical assimilation.

The capacity to contribute is unequally distributed. One person may have specialised expertise and reliable access to a laboratory but little free time; another may have considerable experiential knowledge and no access to professional publication channels. Hospital staff may face organisational constraints, a patient may need to conserve energy, a student may depend on recommendations or grades, and a community organisation may lack resources to translate its concerns into a formal proposal. Publicly announcing that anyone can contribute does not remove these asymmetries. A platform based on technical documentation may systematically make engineers more visible than people whose knowledge is oral, situated, or difficult to disclose. A competitive proposal process may privilege those already familiar with grant language. These possibilities must be investigated rather than asserted as observed results in any particular hospital.

Power relations enter the design even when no participant is explicitly ordered to contribute. A trainee may regard an invitation from a supervisor as difficult to decline. A volunteer may fear that refusing an additional Commons task will affect the allocation of ordinary service opportunities. A patient may incorrectly believe that service quality depends on helping with an evaluation. A staff member may experience “voluntary innovation” as an unrecognised expansion of workload. The fact that a request was expressed politely, that participation was formally labelled optional, or that a digital consent box was ticked is not by itself sufficient to infer freedom from undue pressure. Analysis of participation in governance already requires attention to who participates, how communication occurs, and what connection the process has to decisions and authority (Fung, 2006; Arnstein, 1969). The hospital setting adds specific asymmetries of professional expertise, dependency, and access.

These considerations have implications for the *initial population* of an evolutionary field. Seed practices should not be selected only by the visibility of technically articulate contributors or by the likelihood of producing rapid outputs. A design that exclusively amplifies those with resources to document and publicise work may become path dependent before less visible needs have been expressed. Nevertheless, this does not justify pressuring underrepresented persons to contribute in order to repair a participation statistic. Accessibility, different modes of expression, respectful invitations, and independent advocacy or representation may be considered where appropriate; no single mechanism substitutes for the actual preferences and rights of the people concerned.

3.4 Voluntariness, Agreed Duties, and the Option of Refusal

Voluntariness in the Commons is activity-specific. It does not necessarily mean that every action undertaken by every participant occurs outside all professional duties or contractual obligations. A paid employee may be assigned to maintain a system under a valid work arrangement, while optional contributions by a student or volunteer remain outside that arrangement. A university may require coursework within an authorised education programme, but that educational requirement does not establish consent to unrelated Commons research or future maintenance. Distinguishing these situations avoids the implausible proposition that essential infrastructure must always be supported by unpaid voluntary labour.

A volunteer’s agreed service role may contain mundane but indispensable tasks. The fact that a volunteer fulfils those tasks does not create an additional obligation to post feedback, prepare public materials, conduct research, program software, or participate in institutional governance. An optional suggestion is not a commitment to implement it. A recurring suggestion is not evidence that a volunteer team has accepted new work. Where existing service duties are too burdensome to leave room for additional cre-

ation, the appropriate response may be to reduce the burden or use compensated staff rather than appeal to a vague duty to create public value. The ILO's measurement framework treats volunteer work as a distinct object for statistical description (International Labour Organization, 2011); it does not grant organisations a right to extract labour, nor does any measurement classification resolve jurisdiction-specific employment obligations.

One preliminary normative design test concerns the practical possibility of saying no. Refusal may need to be available without punitive loss of unrelated benefits, negative professional inferences, or continued solicitation. In settings where a person depends on care, assessment, or a supervisor's support, merely including an opt-out button is a weak safeguard. Independent channels, limits on repeated requests, transparency about who will receive a response, and separation of service evaluation from creative recruitment may be appropriate alternatives, subject to local feasibility. A person's decision not to disclose the reason for refusal can also be legitimate. An evolutionary system should not code all silence as latent interest awaiting a better incentive, because silence may indicate an informed preference, fear, inaccessibility, or no interest at all.

Exit must likewise be differentiated. Leaving an operational hospital role may require the termination of corresponding privileged access, while a person's rights in independently authored work and permission to use public materials may continue. Ending Commons membership does not automatically terminate all lawful relationships to a published artifact. Conversely, prior service or contribution cannot entitle a former participant to patient records, secure premises, or other restricted systems. Questions of continuing access, stewardship, and rights require scope-specific review; this chapter identifies the participation problem, while the later chapters address its infrastructural and institutional forms.

3.5 Motivations as Historically Evolving Relational Conditions

The three-level generative relational discipline of Section 2.1 guards against treating motivation as a fully accessible entity. At the level of *ontological reality*, the ultimate status of desire, intention, personhood, and normative subjectivity is not settled by the analytical framework. At the level of *relational reality*, historically formed habits, interests, obligations, mutual expectations, trust, professional identities, and resource dependencies may have real consequences for whether a particular creative activity becomes feasible or attractive. At the level of *manifestation reality*, investigators encounter partial signs such as stated reasons, invitations, expressed refusals, contributions, meeting attendance, project histories, or subsequent withdrawal. These traces are not transparent windows into intention. The same observed act may be consistent with professional duty, social pressure, altruism, curiosity, or several motivations together.

The generative relational proposition is therefore narrower than the claim that infrastructure itself causes people to want to contribute. A field can sometimes alter the *conditions under which reasons for contribution are formed and acted upon*. For example, a student who initially wants to solve a personal programming problem may encounter an educator interested in a similar problem, leading to a collaborative teaching tool. If the student declines that collaboration, the original independent activity may continue. If collaboration begins and later stops, the joint artifact may remain useful under appropriate rights arrangements. Different histories are compatible with the same initial technical opportunity. Opportunities may be unrecognised; motives may form without public action; contributions may occur without lasting identification with the Commons.

This account has a reciprocal dimension. Individual reasons and capacities shape which field interfaces are actually used. The observed use of an interface can then influence what maintainers preserve, revise, or remove, thereby changing the options available to later participants. Yet observational similarity should not be confused with causal identification. If participants already knew one another, their collaboration might have occurred without the Commons. If a laboratory was independently funded, the appearance of a Commons profile could simply document a pre-existing creative path. And when a practice persists, the explanation may be professional dependence or the absence of alternatives rather than spontaneous collective endorsement. The co-evolution relation in Equation (4) admits such com-

Table 4: Illustrative participation relations and the inferential boundary for each case. The scenarios are hypothetical, not observations or programme results.

Context	Proposed participation interpretation	Countercase or required caution
Existing volunteer service	Agreed service duties can be performed without entering a Commons project	Completing the shift does not imply willingness to conduct research or maintain a proposal channel
Independent education research	A scholar may use public resources and develop a useful teaching artifact	Ordinary university infrastructure may already provide everything needed; no added Commons function is warranted
Student robotics exploration	Personal technical interest may support optional collaborative creation	Access to simulation tools does not establish permission for physical tests or hospital deployment
Patient or family feedback	Experiential knowledge may inform a service question through a safe voluntary channel	A care relationship does not imply research consent, repeated contact, or an obligation to disclose
Staff-led improvement	A worker may propose a locally useful method within agreed responsibilities	Apparent enthusiasm can coexist with workload pressure and should not authorise unpaid extra duties
Public artifact reused elsewhere	An external community may extend a contributor's work after departure	Reuse does not prove the originator welcomed every adaptation or gained corresponding resources

peting accounts; it does not assign causal efficacy to the field merely because the same trajectory can be represented within it.

This interpretation also limits the analogy to evolutionary computation. A programme may experiment with combinations of practice interfaces and resource conditions, but persons and their psychological orientations should not be represented as disposable chromosomes optimised for public output. “Selection” refers here to institutionally justified decisions about continuation, modification, funding, and retirement of practices, not to culling people or rewarding conformity to one ideal profile. Both participants’ valuations and the field’s resources can change during interaction, so a fixed contribution score would miss important parts of the phenomenon. The meanings of value and evidence are examined in the subsequent chapter on relational value formation; the present chapter identifies the participation problem without pre-emptively deciding its solution.

3.6 Participation Patterns and Discriminating Countercases

A credible design comparison should ask when a Commons interface adds value beyond existing practices. It should also evaluate errors caused by mistaking observed participation for voluntary creative agreement. Table 4 gives hypothetical cases designed to discriminate between candidate interpretations. None is a reported hospital observation or an evaluated intervention.

Three alternative outcomes deserve explicit standing in evaluation. First, a Commons can legitimately be *unused* by someone for whom ordinary service or independent research is sufficient. Second, a Commons can be *used without further donation*: a person lawfully benefits from a public resource and does not contribute back. Third, a person can make a *valuable contribution outside the Commons*: a service improvement or independent study may be recognised elsewhere, without the Commons having facilitated it. These are not automatically deficits to be corrected by retention targets. They are necessary countercases for testing whether the proposed field produces additional opportunities or merely reclassifies activities that would have occurred anyway.

3.7 Empirical Inquiry into Reasons, Constraints, and Nonparticipation

The participation question has a distinct empirical difficulty: observing a contribution does not disclose the actor's reason for undertaking it. Activity-specific, voluntary interviews may be combined, where ethically and institutionally permitted, with records of the ordinary tasks that preceded a Commons invitation. The relevant contrast is not only between contributors and noncontributors, but between people with different realistic opportunities to refuse, continue independently, or use a functioning alternative. A student's dependence on grades or recommendations, a volunteer's wish to maintain goodwill with a supervisor, and a staff member's employment obligations may affect both reported willingness and the capacity to decline an extra task. These possibilities are hypotheses requiring careful, role-sensitive inquiry, not motives attributable to a category of person by definition.

Recruitment and interpretation must acknowledge selection effects. People who declined or could not access the proposed field may be missing from the sample. A refusal to be interviewed cannot be overridden to improve representativeness, and silence is neither agreement nor evidence of latent willingness. Where permissible, researchers may analyse participation opportunities using independently documented conditions, indicate who could not be contacted legitimately, and qualify what they cannot infer. Case-study and realist-evaluation traditions provide established alternatives for investigating context and mechanism (Yin, 2018; Pawson and Tilley, 1997); the common cross-case assessment protocol is specified in Chapter 17.

A particularly discriminating observation would be a decrease in available time, autonomy, or independent creative work despite an increase in recorded Commons contributions. It would challenge an incentive-centred account that equates visible participation with improved generative conditions. Conversely, where a conventional feedback channel already respects refusal and provides equal opportunities with lower burdens, participation theory does not justify another registration or proposal interface.

3.8 Participation Conditions for the Evolutionary Commons Field

The chapter identifies heterogeneous reasons for action and unequal conditions for acting upon them as part of the field's institutional problem. The analytical unit is an activity-specific, historically situated participation relation, not a general personality type or a global Commons membership status. Motives and cooperative expectations can form and change through experience, but the provision of an opportunity does not create a reason to accept it. Legitimate refusal, separation of existing duties from newly requested work, and case-specific authority are constitutive constraints on how a field may support voluntary creativity.

These conclusions do not establish which ideas have value or how actors can recognise that value. Those questions depend on situated evaluation, communication, conflict, and changing audiences rather than on contribution counts or motivation inventories. The next analytical step is therefore the formation, recognition, and contestation of relational value. Its object is not an incentive schedule guaranteeing voluntary labour, but the conditions under which heterogeneous creative trajectories may acquire meaning for different subjects and become candidates for further circulation.

4 Relational Value Formation, Recognition, and Generative Opportunities

This chapter examines the conditions under which an activity, artifact, or practice may become valuable to different subjects without presupposing a single measure or an obligation to contribute. Its immediate object is the relation between creative activity, situated judgments of value, and opportunities for further creation. The chapter distinguishes an artifact's existence from its possible usefulness, an audience's recognition from justified acceptance, and a favorable assessment from authority to use an artifact in an institution. It also asks how a Commons might make previously unrelated professional interests and problems mutually intelligible while preserving the possibility that no collaboration follows. The analysis

builds on the public-service value literature, scholarship on knowledge translation and boundary objects, private–collective innovation, and accounts of generative justice. Its additional proposal is a contextual vocabulary for comparing value claims and generative opportunities across activities and institutional boundaries. No measured effect, universal ranking of values, or hospital endorsement is claimed. The resulting conceptual distinctions support the subsequent design of initial seed practices, infrastructure, proposal facilities, creative trajectories, and value-circulation pathways.

4.1 Creative Activity, Artifacts, and Situated Values

The existence of a contribution and the existence of value are different analytical questions. A student may write navigation software, a volunteer may make a service suggestion, an educator may design a teaching exercise, and a community artist may make a physical work. These cases involve activities, but the activities need not produce artifacts of comparable kinds. Software can be tested and modified; an educational interaction may be valuable in the course of its occurrence; a proposed change to a service might never be implemented; an artwork may have multiple meanings that are not reducible to medical benefit. A Commons that records only projects and uploaded files would therefore miss some forms of value while exaggerating the significance of others.

A useful first distinction is between the *creative process*, an *artifactual or practical outcome*, the *experience* of an affected subject, and subsequent *changes in available capabilities*. One activity can have different consequences in each dimension. Building a robotics prototype may teach its student designer useful engineering methods while yielding no deployable robot. A staff-development workshop may improve confidence among willing participants but produce no new published materials. A proposed service change may generate a constructive discussion even if the institution rejects the proposal as impracticable. Conversely, a well-documented artifact can be produced through an exhausting process which diminishes the creator’s capacity for future work. Neither output volume nor the existence of an accessible repository captures these differences.

Public-service scholarship already develops a sophisticated account of value formation across interactions, service provision, and experience. Osborne et al. (2021) challenge a narrow understanding of co-production, and Osborne et al. (2022) distinguish forms and locations of value across a public service ecosystem, including the possibility of value destruction. Their argument is not that an organisation determines value solely by declaring its own services valuable. Users and other participants integrate resources with their particular needs, experiences, and situations. These accounts are particularly relevant to university hospitals, but the present inquiry has a wider object than public service delivery: knowledge, code, craft, education, experimental ideas, and independent work might develop inside or outside hospital service relations. The public-service literature is therefore a source of theoretical discipline rather than a complete classification of Commons value.

The distinction between the creator’s purposes and the eventual use of a creation is also familiar in innovation studies. The private–collective innovation model of von Hippel and von Krogh (2003) explains why innovators can address their own needs and still reveal results from which others may benefit. It does not imply that every privately motivated invention will be shared, that sharing is costless, or that a hospital should finance an unrelated activity. For Commons design, the relevant possibility is narrower: enabling a person to pursue a legitimate activity of their own can sometimes leave an artifact or practice that others may later find useful. Such an intersection of interests is possible without being guaranteed or ethically compulsory.

4.2 Relational Reality and the Epistemic Status of Value

The three-level generative relational discipline established in Section 2.1 remains necessary when reasoning about value. At the level of *ontological reality*, the paper suspends claims that value is ultimately a property possessed independently by an artifact, merely an arbitrary mental attribution, or entirely reducible to an objective welfare function. The study does not settle the metaphysics of value by defining a platform data field.

At the level of *relational reality*, historically constituted subjects, activities, artifacts, institutions, and environments can exercise real causal and generative effects. A change in a training method may alter how a learner can act. Access to a suitable tool may alter which designs are feasible. An enduring relationship with a technical mentor may change a student’s later professional opportunities. Such effects may exist even when no convenient metric records them. The claim is not that all perceived benefits correspond to effects, but that contextual and historically formed relations matter to what can actually happen.

At the level of *manifestation reality*, actors encounter partial representations of those relations: an interview account, design file, prototype demonstration, evaluation report, citation, institutional referral, or observation of practice. Each can make something available for interpretation without exhausting its meaning or proving a causal claim. A positive comment on a document need not establish that the document improves teaching. A successful simulation is not evidence of safe deployment in a clinical environment. The absence of citations or funding cannot establish the absence of intellectual value, especially when contributions are tacit, local, difficult to publish, or developed outside powerful professional networks.

This separation is neither a claim that all values are equally justified nor a denial that evaluators can make defensible judgments. It requires the relevant kind of evidence to match the proposition being assessed. A mathematical proof, a usability observation, a participant’s account of experienced meaning, and a clinical safety assessment bear on different questions and may require different forms of expertise. Their evidential standards can overlap without becoming interchangeable. Accordingly, the Commons should not serve as a single tribunal of the value of research, volunteering, education, art, and technical artifacts. It may instead support multiple competent forms of assessment and make their limited scopes more explicit.

4.3 Value Claims, Evaluators, and Independent Authority

A value claim should be distinguished from both a descriptive account of an artifact and an institutionally operative decision. Consider a hypothetical robot prototype designed by a student. The statement that a physical prototype exists is a claim about an artifact. The statement that it may improve movement of materials is a claim about prospective utility. The statement that a simulation showed reduced travel distance is a narrower empirical claim. A later judgment that the device is appropriate for deployment in a particular hospital entails further standards, evidence, and decisions which are not furnished by the first three statements alone.

To keep these objects distinct, the paper introduces a *partial assessment record* for evaluator e , creative object or practice o , value dimension v , context c , and time t :

$$\text{ValClaim}_{c,t}(e, o, v) = \langle p, \eta, \sigma, \beta, \delta \rangle, \quad (6)$$

where p is the specific proposition being advanced, η denotes available grounds and their provenance, σ records the scope and limitations of the evaluation, β describes the beneficiaries and possible burden bearers considered, and δ denotes a qualified assessment status such as supported, opposed, unresolved, or disputed. The symbols describe an analytical record, not a calculated value score. A missing entry is not presumed negative; an evaluator’s confidence is not automatically a probability; and the record does not constitute an institutional authorisation. The dimensions and statuses would require operational definition for any empirical application.

Professional communities may disagree without either judgment being meaningless. An education researcher may recognise an instructional robot as a productive case for studying experiential learning; an engineer may consider its control design technically interesting but fragile; a hospital service manager may find no demonstrated operational benefit; a patient representative may identify practical accessibility concerns. The disagreement could reflect distinct evaluative questions, different evidence, conflicting interests, or genuine uncertainty within a shared domain. A Commons should not conceal such heterogeneity in a single reputation score. It could help articulate what was judged, by whom, using what materials, and for which purpose, when sharing those judgments is permissible and worthwhile.

Formal recognition may also take several forms. A citation, an award, a university research discussion, an external funding review, and a hospital's operational approval each make different claims and exercise different authority. The existence of a recommendation route to a research school, a public funding body, or a professional organisation does not oblige any recipient to evaluate or support a submission. Nor does a positive assessment by one institution create a licence to use another institution's resources. The independence of institutional competence developed in Section 1.3 therefore applies equally to value recognition. Routing a claim to a competent audience is not the same event as receiving a favourable judgment, and a favourable judgment does not automatically authorise clinical use.

The distinction is especially important for contributions made during volunteer service. A volunteer's practical insight may deserve respectful consideration through an existing feedback channel, but submitting that insight need not constitute assignment of intellectual-property rights, consent to research participation, or agreement to become a project maintainer. Ownership and permissible use of an invention, design, written material, or software component can depend on applicable law, existing agreements, employment or educational conditions, other parties' rights, and the nature of the work. The World Intellectual Property Organization discusses such variation in university technology-transfer arrangements (World Intellectual Property Organization, 2026b). The Commons may help make questions visible and refer them to appropriate decision-makers, but cannot resolve them through a label such as "community-generated."

4.4 Value Translation Across Professional and Institutional Boundaries

An evaluative claim can fail to reach a relevant audience even when its underlying artifact is freely available. A student may describe a robotics model using engineering terminology while a service educator cares about learning outcomes and a volunteer coordinator about workload and practical responsibilities. A public repository preserves a design, but the prospective users may not know the repository exists, may lack the knowledge to interpret the design, or may have no legitimate way to experiment with it. Making materials accessible is consequently different from establishing the relations through which their potential uses become intelligible.

Star and Griesemer (1989) analyse cooperation among heterogeneous participants through translation and boundary objects, including repositories and standardised forms. Carlile (2004) distinguishes knowledge transfer, translation, and transformation across boundaries of increasing complexity. These contributions provide a basis for investigating situations in which a common artifact is meaningful to different communities without forcing them to agree on one professional language. This paper does not originate the insight that shared artifacts can mediate heterogeneous work. Its more specific design concern is whether an evolutionary Commons can provide *appropriate encounters* between autonomous creative trajectories and audiences capable of considering them.

Such encounters need not require an elaborate central service. A short, non-sensitive summary of a proposed teaching method may suffice for an educator to notice a connection. A versioned engineering repository may support more detailed collaboration once interest has emerged. A volunteer suggestion may need only an ordinary, accessible feedback route. A physical prototype may require an entirely different venue for demonstration, including safety controls before any testing near patients or restricted work areas. What counts as useful translation depends on the activity, the prospective audience, and the costs of communication. Excessive formalisation may create a barrier of its own by obliging contributors to master grant language, software workflows, or administrative taxonomies before their ideas can be heard.

Translation also changes what becomes visible. Representing a patient's experience as a sequence of countable service transactions may aid workflow analysis while losing experiential or relational dimensions that the patient regards as central. Translating an artistic practice into a hypothetical therapeutic outcome can both misrepresent the work and introduce a clinical assertion requiring independent substantiation. Accordingly, a Commons should retain opportunities for contributors and affected subjects to challenge an imposed framing, and for multiple accounts of a contribution to coexist when they are

appropriately attributed. Recognition is not neutral merely because it occurs through an ostensibly open digital platform.

4.5 Generative Opportunities and Actual Changes in Capability

Value creation may depend on the presence of a feasible opportunity even when no contribution is eventually made. An independent education researcher might already know the question they want to study but lack suitable non-sensitive teaching scenarios. A student may have a plausible robotics idea but no access to development tools. A volunteer may wish to share a small improvement only if it can be done without adding a recurring obligation. The possible significance of a Commons interface in these cases lies in the difference it makes to which activities can be responsibly undertaken, rather than in the number of proposals it receives.

For subject s , context c , and time t , let $\Omega_{s,c,t}(\mathcal{F})$ denote the set of activities that are *feasible and appropriately permitted* given field conditions $\mathcal{F}$. Feasibility includes situated access to resources and skills, time constraints, and relevant responsibilities; permission is not inferred from capability. For a baseline arrangement b and proposed arrangement d , both assessed at the same specified activity scope and time, define the *gained* and *lost* opportunity sets:

$$\begin{aligned}\Delta^+ \Omega_{s,c,t}(d | b) &:= \Omega_{s,c,t}(\mathcal{F}^d) \setminus \Omega_{s,c,t}(\mathcal{F}^b), \\ \Delta^- \Omega_{s,c,t}(d | b) &:= \Omega_{s,c,t}(\mathcal{F}^b) \setminus \Omega_{s,c,t}(\mathcal{F}^d).\end{aligned}\tag{7}$$

The reference universe of candidate activities, relevant permission conditions, and observation time must be stated for both alternatives; otherwise an apparent “increment” may be only a changed description. More precisely, a comparison should fix a common candidate-activity domain $\mathcal{A}^{\text{cand}}$ and evaluate $\Omega_{s,c,t}(\mathcal{F}^q) \cap \mathcal{A}^{\text{cand}}$ for $q \in \{d, b\}$. Identity of an activity includes its intended task, material setting, authority scope and feasible next action. The same label, such as “robotics,” does not make simulation, workshop testing and clinical deployment members of one interchangeable opportunity. For a multi-date evaluation, Equation (7) is applied at declared times, rather than interpreting a gain at one date as if it were immediately available throughout the observation period. The two set differences are conceptual comparisons, not measured welfare changes or proof that the new arrangement is preferable. In particular, $\Omega_{s,c,t}(\mathcal{F}^d)$ and $\Omega_{s,c,t}(\mathcal{F}^b)$ are *alternative-condition* sets. For a single actor at a given decision point, both alternatives cannot generally be observed as realised conditions. The notation therefore does not identify a causal difference: an investigator must specify the credible comparator, the feasible-activity criteria and the uncertainty of each membership claim. A proposal’s published list of resources cannot by itself populate either set. Evidence that a participant exercised one permitted option is also insufficient to infer that every other option was feasible or infeasible. Both may be nonempty: a new opportunity for publicly sharing a prototype may coexist with the loss of protected workspace time under the same proposal. The comparison must also identify shifted costs and whose feasible set is enlarged or reduced. Activities feasible for a formally privileged researcher may remain inaccessible to a patient or an independent volunteer. An apparent addition may be unusable when its time, documentation, or maintenance requirements are unaffordable. Moreover, an activity can belong to Ω without ever being attempted.

The analysis should distinguish *capability to attempt* an activity, *realised activity*, *assessed outcomes*, and *later capability change*. For example, receiving permission to use a public simulation tool enlarges an opportunity set under suitable conditions; it does not demonstrate that a student has constructed a robot. Building a prototype demonstrates an activity and perhaps an artifact, but neither establishes practical benefit nor proves increased future capacity. An educator’s voluntary reuse of part of the design may create learning opportunities without returning any resources to the original student. Each transition requires evidence of its own kind.

The distinction is important for low-visibility outcomes. A learner who uses a public Commons resource to improve a personal skill, and never contributes an artifact, may still have gained something that the field was legitimately intended to enable. Conversely, a public platform may have impressive

contribution counts while restricting productive time or obscuring the work of its maintainers. A robust evaluation should consider both those who gained actionable options and those for whom resource costs, social conditions, or restrictions made the nominal options ineffective. The later chapter on generative infrastructure will examine how such enabling conditions might be assembled; the present chapter establishes what would count as a change worth investigating.

4.6 Temporal Recognition, Creative Histories, and Delayed Uses

A contribution may become recognisable to a new audience long after its creation, and recognition may change as knowledge, institutions, and practical problems evolve. An unfinished prototype may subsequently serve as educational material. A once-neglected service suggestion may become relevant when institutional conditions change. A technical method produced within a particular Commons could be developed further in an independent research community and later revisited for a different purpose. It would be misleading to evaluate all such trajectories only by their outcomes at the time of initial submission.

A useful record of this history would separate the time of creative activity, the time at which a particular representation became available, the time an evaluator encountered it, and the time of any later use or change in resources. Each event may have incomplete or contested evidence. Historical continuity does not make the original contributor responsible for all subsequent uses; nor does it retrospectively establish authorisation for activities that were restricted when they occurred. A later favorable interpretation should not be inserted into the earlier record as if it had already been available to the original participants. The record can support historical inquiry precisely because those distinct times and claims are preserved.

There is also a difference between preserving a creative trajectory and requiring an individual to maintain it. A student may leave a university, a volunteer may cease service, or a research group may dissolve. Appropriately licensed documents and tools could nonetheless be continued by other willing contributors. Other materials may be confidential, encumbered by third-party rights, or dependent on equipment that cannot reasonably be maintained. The original creator may permit certain uses but decline further involvement. Therefore historical traceability, rights to reuse, access to resources, and ongoing stewardship must remain separate matters. Questions of versioning, provenance, circulation interfaces, and long-term maintenance are examined in the later dedicated chapters rather than presupposed here.

This historical account also resists a demand that benefits return to the originating Commons. A teaching method first shared in a hospital-related field may improve learning elsewhere, without a financial, professional, or informational return path. Such diffusion may still accord with an open knowledge objective. Where continued operation requires specific labour or resources, however, the absence of a viable maintenance arrangement remains an institutional problem. The existence of diffuse public benefit is not evidence that unpaid stewardship is sustainable. Eglash (2016) develops generative justice in terms of the direction and circulation of value, while Eglash et al. (2024) further examines unalienated circular value flows. The present proposal draws attention to those questions without claiming that every Commons exchange satisfies generative justice or that every benefit must close a return circuit.

4.7 Power over Visibility, Recognition, and Value Loss

Recognition depends partly on who can make a contribution visible and whose judgment is heard. A research institution may provide established publication and endorsement channels to professional scholars; people with experiential knowledge, limited language proficiency, disabilities, or little time may encounter higher costs of expression. Technical platforms can strengthen these asymmetries if rankings favour previously popular projects, forms privilege polished proposals, or professional jargon becomes an implicit condition for receiving feedback. The infrastructure is then not merely communicating existing value; it is helping to determine which possible value claims become recognisable.

A governance proposal should therefore examine distributions of attention, translation work, credit, and the labour of keeping communication channels usable. Moderating submissions, clarifying access rights, resolving disputes, supporting accessibility, and introducing external audiences all require work that may be difficult to observe in aggregate contribution statistics. The presence of a popular proposal

does not prove that it has greater value than an overlooked one, and repeated recognition can reflect cumulative advantage rather than independent evaluation. Equally, it would be unwarranted to claim that the Commons can eliminate such disparities simply by imposing another central scoring system. The investigation should compare plural assessment routes, proportionate feedback, opportunities to challenge a framing, and the costs borne by different participants.

Public-service value can be diminished as well as created (Osborne et al., 2022). Consider a service innovation that improves an administrative metric while making the experience of patients less dignified. A robotic demonstration may provide learning value but require unsafe testing conditions. An ambitious proposal programme may divert staff time from agreed work without producing any usable improvement. These examples should not be treated as measured outcomes at a named hospital; they specify reasons to evaluate potentially harmful consequences alongside attractive benefits.

Important limits follow for the normative status of recognition. Community applause cannot authorise a clinical experiment. A favorable engineering review does not establish patient benefit. A successful funding application does not prove a policy choice just. Nor should lack of institutional recognition be equated with lack of personal or cultural value. Legitimate application in regulated settings depends on relevant rules, authority, and evidence, none of which can be created merely by increasing the number of positive reactions on a platform. These constraints belong to the design of the field, but their jurisdiction-specific legal operation is not settled by the present conceptual chapter.

4.8 Comparative Cases and Discriminating Evidence

The proposed relations require comparison with existing explanatory and institutional alternatives. Ordinary publishing, professional networks, university courses, open technical repositories, hospital feedback channels, and established support programmes may already permit an artifact to be found and evaluated. The Commons hypothesis gains no support merely because a contribution was disseminated through a Commons-labelled interface. The relevant question is whether a proposed arrangement changes the conditions for appropriate discovery, value translation, critical assessment, or feasible subsequent activity at acceptable cost, relative to a plausible alternative.

Table 5 sets out hypothetical cases designed to discriminate among several inferences. They are constructed examples, not empirical observations or predictions.

An empirical inquiry could examine, for each candidate opportunity, what the subject needed before exposure, what was actually made available, whether the conditions were usable, and what independent action followed. Evaluation of recognition would require recording the evaluator, object, asserted value, evidence, criteria, and subsequent decisions separately. Relevant counterfactuals could compare an ordinary university repository or departmental referral with a lightweight Commons routing interface under equivalent information and similar workloads. Where quantitative outcomes are available, they should be interpreted with attention to selection, unequal starting positions, and displaced maintenance work. Qualitative process tracing may be more suitable for delayed, context-dependent value claims; neither method converts a proposed mechanism into a demonstrated result in the absence of data (Yin, 2018; Pawson and Tilley, 1997).

The proposed framework would be weakened if clear ordinary records and existing professional channels identify the same relevant judgments and opportunities at lower cost. It would also be weakened if its recognition categories systematically suppress valuable contributions which do not fit professional forms, or if purported increases in opportunity are no more than nominal access without feasible action. Such outcomes are genuine limits, not defects to be explained away by adding new platform features. A smaller Commons may be preferable when the extra interface does not add a demonstrable capability for the people and practices it intends to support.

4.9 Value Formation as a Condition for Field Initialization

The analysis yields a restrained design conclusion. An initial Commons field need not prespecify valuable projects, assign common motives to participants, or select a universal value metric. It must, however,

Table 5: Illustrative discriminating cases for relational value and recognition. “Commons effect” remains a hypothesis in each case.

Situation	Claim to investigate	Competing account or boundary
An educator reuses a public teaching scenario	Access and cross-professional presentation may enable new educational work	The same reuse might occur through an existing library or course; reuse alone does not demonstrate learning benefit
A robotics design gains external technical interest	A circulation interface may expose it to a relevant engineering audience	A pre-existing professional network may explain discovery; technical interest does not confer hospital deployment authority
A volunteer’s improvement suggestion receives no institutional adoption	The experience may still reveal a local problem or generate useful dialogue	Rejection may be well-founded, or the ordinary service-feedback channel may already suffice
An initially unnoticed document becomes useful years later	Retained, discoverable histories may support delayed recognition	The later use may be independent of the Commons or violate reuse conditions if rights were not secured
A highly visible project draws volunteers and resources	Attention may foster further creative opportunity	Popularity may reflect unequal promotion; extra maintenance demands may reduce capability elsewhere
A creator uses public resources without contributing back	An open-access objective may still be fulfilled	Unreciprocated access may pose a distinct funding or maintenance problem, not a failure of voluntary character

be sufficiently concrete that at least some legitimate activities can occur under feasible conditions, and that participants can distinguish a creative possibility from an institutional promise. The field may offer resources or communication interfaces, but it should not make contribution a condition of using legitimately available public knowledge. Claims of value should remain open to professional and experiential challenge; their evaluation should not usurp another institution’s legal or operational competence.

This understanding informs the next chapter’s inquiry into initial seed practices, resources, and constitutive norms. A viable seed need not be a particularly prestigious project: it may be an educational exercise, a reusable technical tool, a careful suggestion, or a community practice with its own reason to exist. Initial conditions should permit heterogeneous trajectories to develop and perhaps intersect, while leaving space for activities that proceed independently, fail, or never generate a public contribution. Whether specific opportunities later become recognised, sustained, or circulated remains an empirical and historical question. The initial field is justified, if at all, by defensible improvements to the conditions of voluntary and appropriately authorised creation, not by an assumption that valuable outcomes will inevitably emerge.

5 Commons Initialization: Seed Practices, Resources, and Constitutive Norms

This chapter examines the initial constitution of an evolutionary university hospital Commons. Its design problem arises before the existence of a mature community, a stable portfolio of projects, or established practices of reciprocal contribution. An empty platform with a proposal form has no necessary reason to elicit proposals; a catalogue of accessible resources does not by itself give a researcher the time, competencies, permissions, and incentives needed to undertake creative work. Conversely, a tightly prescribed programme might secure predictable outputs by removing the diversity and voluntary exploratory space

that an evolutionary Commons was intended to support. The question is therefore how a small initial field can sustain meaningful activities now, while retaining the capacity to accommodate relationships and creations that its founders cannot foresee. The chapter uses the situated value analysis of Section 4, the activity-specific autonomy distinctions of Section 3, and institutional analysis, evolutionary economics, and genetic algorithms as differently limited sources of insight. It develops an initial-practice vocabulary, separates constitutive safeguards from revisable conventions, examines resource commitments and selection effects, and proposes comparisons against adequate existing arrangements. The claims are preliminary design hypotheses, not descriptions of an established hospital scheme.

5.1 Initial Conditions and the Viability of Seed Practices

An evolutionary field cannot rely exclusively on anticipated future contributors. A new Commons may provide accounts, discussion boards, and a list of possible projects while lacking anyone for whom a project is presently worth pursuing. The absence of action in such a case does not reveal deficient civic motivation: participants may have no unmet need for the offered tools, no spare time, no authority to act, or no reason to entrust their work to the new institution. The design problem begins with the difference between an *opportunity to submit* an idea and a *feasible creative activity* whose purpose is intelligible to someone who might undertake it. A seed practice is an actual or credibly ready activity with its own legitimate aim, responsible participants, accessible means, and a continuation path that does not depend on imagined future volunteer labour.

In this study, the *initial population* does not comprise persons to be ranked, selected, or displaced. Its analytical units are *practice configurations*: relations among an activity, the subjects voluntarily undertaking it, necessary resources, available competencies, and relevant constraints. One person may participate in several configurations; a single practice may be sustained by an existing group; and some valuable uses of a Commons require no contribution to its common archive. Accordingly, there is no analog of a fitness score that assigns a human participant comparative worth. The genetic-algorithm analogy of initial populations becomes useful only insofar as it directs attention to the variety, viability, and interaction of possible practices, not to the optimisation of individuals.

Let $\mathcal{F}_{c,0}$ denote the proposed initial field under the notation of Equation (1), and let p denote a candidate practice configuration in a context c . We can record its minimum design description as

$$p = \langle g_p, a_p, m_p, w_p, \kappa_p, h_p \rangle, \quad (8)$$

where g_p is the practice's independently intelligible purpose, a_p its willing and competent participating actors, m_p the resources and interfaces it actually needs, w_p the work and maintenance responsibilities that have been accepted, κ_p the activity-specific rights, safety, and permission constraints, and h_p the available continuation or closure arrangements. This is a *partial* description. The entries may be incomplete or contested, and the notation neither establishes an actor's willingness nor certifies the validity of a proposed permission. An unresolved necessary condition is a reason to defer the restricted activity, not evidence that it has been authorised. Open independent research using lawful public material may need little institutional approval; activities involving protected hospital resources require distinct competent review.

A candidate can be considered *launchable* only relative to a declared context and scope. For example, a learner may be able to prototype an educational exercise using synthetic examples without relying on hospital staff, while a proposal to trial that exercise within mandatory clinical training remains contingent on a responsible department's separate decision. The two are different configurations even if their descriptions mention the same educational topic. Seed viability also has a temporal aspect: a practice capable of one independent workshop may be viable for an exploratory seed without thereby supporting a recurring programme. Recurrent commitments should not be silently inferred from a successful initial event.

This approach differs from selecting a set of impressive project pitches. A pitch may describe an attractive possibility without specifying who is able and willing to carry out its next permissible step.

Conversely, an ordinary activity, such as maintaining a reusable set of accessible training illustrations, may be an excellent seed precisely because it is modest, already purposeful, and open to future adaptation. A Commons is more credibly initialised by a few such supported practices than by an elaborate inventory of unowned ambitions. Even that comparison remains contextual: if a small existing group can already support the same activity, an additional Commons apparatus may have no incremental function.

5.2 Relational Status of Seeds and Their Observable Manifestations

The three levels of generative relational analysis introduced in Section 2.1 qualify what it means to identify an initial seed. At the level of *ontological reality*, the framework makes no claim that practices, motivations, or social fields possess a predetermined ultimate form, nor that a mathematical representation exhausts their being. In particular, describing a practice as a member of an initial population does not import a biological theory of competition or inheritance into the status of its human participants.

At the level of *relational reality*, a seed is historically situated within capacities and constraints that matter causally. A student may possess software expertise but lack a safe test environment; an educator may have a pedagogical question but no reason to participate in a hospital-specific project; a volunteer may complete a defined service reliably while having no capacity or wish for extra tasks. Relations among these circumstances can make an experiment possible or impossible. A small authorised workshop, a stable maintainer, a legally reusable design, or access to a willing specialist may change the set of activities that can actually be attempted. These differences are real for the actors concerned even when the emerging practice does not produce a publishable artifact.

At the level of *manifestation reality*, a sign-up form, repository commit, proposal, prototype photograph, access log, or workshop note provides a limited representation of a practice. None by itself shows that the practice is self-sustaining, safe in a hospital, valuable to affected subjects, or consensual for every person recorded as a participant. A proposal can be submitted without subsequent action; a quiet contributor may provide indispensable maintenance without generating visible commits; a recorded absence of contribution can reflect a prudent decision not to extend one's duties. Empirical analysis therefore needs to examine the grounds and omissions of each manifestation rather than treating platform activity metrics as transparent indicators of a social field.

This distinction also affects initialisation under uncertainty. Designers can establish whether an identifiable person has agreed to maintain a public index for a limited period, but they cannot infer that later participants will repeatedly create projects. They may verify that a synthetic dataset is lawfully shareable, but that fact does not establish its pedagogical utility. The chapter thus treats initial field constitution as a modest, evidence-limited commitment to enabling conditions. Its evolutionary openness is not a promise that the field will become self-organising, productive, or even enduring.

5.3 Heterogeneous Seeds and Open Positions for Unforeseen Work

The initial field should not be restricted to a single professional domain or activity whose apparent success happens to be easy to count. University hospitals offer possible connections to education, clinical services, technical engineering, community work, arts, administration, and many forms of independent inquiry. The initial population need not contain one practice from every field. Rather, it should avoid a design in which only the founding discipline has meaningful access to facilities, attention, or the power to define acceptable value. A modest diversity of actual practices can offer an opportunity to observe whether interfaces become useful across contexts, while leaving unused pathways available for later discoveries.

Consider four illustrative seed configurations. First, an educational researcher has a self-standing inquiry into adult learning and can work with public learning materials and synthetic training scenarios. The Commons might provide a reusable test environment or an optional way to share non-sensitive outputs, but need not establish a hospital education department. Second, a hospital volunteer continues an existing approved role and may optionally send a general suggestion through an appropriate channel. The Commons cannot add feedback work to that volunteer's duties by redefining it as creative participation.

Third, students build a robot-navigation simulation with permitted tools and publicly shareable code; development may proceed without approaching hospital premises or claiming clinical applicability. A later request to trial physical equipment in an operational space constitutes a new and separately authorised practice. Fourth, a community group might create an accessible guide, artistic work, or meeting format valuable to its participants without pursuing academic publication or hospital uptake. These are illustrations, not known participants or adopted programmes.

The seeds differ in motivations, outputs, permissions, and capacity for continuation. A Commons may support them through overlapping resources, such as a non-sensitive workspace, documentation tools, technical advice offered voluntarily, or references to suitable external outlets. It should not require that each seed produce reciprocal benefits for all others. A collaboration between the education researcher and the robotics group may emerge around simulation-based teaching; neither group should have to initiate this collaboration in order to justify its independent work. A small body of genuine practices therefore provides a *possibility of interaction* rather than a scheduled pipeline of obligatory cross-disciplinary projects.

A crucial element is an *open position* for future activities that were not selected by the founders. This is not simply an empty item in a project backlog. It refers to an intelligible and fair way for someone with a different professional or lived experience to make a permitted use of common infrastructure, ask whether a resource could be made available, or create a new collaboration without receiving approval for its intellectual topic from the original seed group. Such openness remains resource-constrained: new users cannot assume unlimited equipment time, staff assistance, or authority over others. Yet a starting configuration that exhausts its budget and governance attention on the founding projects risks reproducing precisely the institutional closure that evolutionary design hopes to resist.

Here, diversity cannot be represented adequately by counting disciplines. Two nominally different academic groups may depend on the same equipment and decision-maker, while a patient community participant may introduce a qualitatively different standpoint with few technical resources. Complementarity also differs from superficial interdisciplinarity: a productive connection exists when each party has a permissible and voluntary reason to work together, not merely because their disciplinary labels differ. Openness and viability must therefore be considered with the power to decline cooperation, the cost of participation, and the preservation of independent trajectories.

5.4 Constitutive Safeguards and Revisable Collaborative Conventions

The preference for emergent practices does not eliminate the need for an initial normative constitution. The institutional analysis developed by Ostrom (2005) distinguishes rules and action situations in diverse contexts rather than offering a uniform design to be imposed everywhere. For a university hospital Commons, an initial constitution is needed chiefly to identify what participants may do, whose resources they may use, what obligations they are accepting, and which decisions must remain with legally or institutionally competent actors. It should not predetermine the scientific questions, artistic forms, technical solutions, or future community conventions that will develop under these boundaries.

Some safeguards are constitutive of permissible participation in the proposed field: voluntary entry and the ability to refuse additional labour; respect for privacy, safety, contribution rights, and lawful resource use; explicit separation of Commons membership from staff, clinical, volunteer, or research permissions; and identifiable responsibility for resources that might otherwise be abandoned. These safeguards do not make every applicable rule immutable. They mean that a Commons cannot set aside binding obligations through a popular local vote or infer consent from previous participation. Institutional approvals, professional duties, intellectual-property rights, and privacy obligations may be governed by different authorities and jurisdictions. The Commons must identify the relevant source and competent decision-maker before purporting to approve a restricted action.

Other conventions can remain genuinely revisable: how a public discussion is organised; which tags describe creative trajectories; whether a repository uses a particular versioning style; how people offer optional peer feedback; or how limited public workspace time is scheduled. They can be adapted in

response to experience, subject to the rights and commitments of those affected. Some conventions may become entrenched routines without ever needing legal formality. Others may require formal adoption if they affect allocation of institutional resources or individuals' entitlements. Describing this distinction as *fixed safeguards versus evolving norms* is a simplification: the scope, authority, and revision procedure of each rule should be stated rather than presumed from its category.

A legitimate revision process must distinguish consultation from authority. Contributors may propose a new interface and provide reasons, evidence, and objections. Maintainers may change non-sensitive workflow conventions within an agreed remit. A designated resource owner may control a constrained laboratory or computing allocation. A clinical unit, data controller, research ethics body, or other competent authority retains the responsibilities assigned to it by the applicable regime. For material changes to common practices, those who bear costs or risks need a route to be heard, even when they do not have a formal leadership title. The ability to express a view, however, cannot be interpreted as a blanket right to direct another person's professional responsibilities.

One immediate design test is whether the initial constitution creates a hidden obligation to contribute. Suppose volunteers are invited to give feedback after routine service. If feedback becomes an expected performance measure or affects future service opportunities, the institution may have transformed an optional Commons activity into a *de facto* duty. Likewise, the promised right to exit becomes hollow if a former member must continue unpaid maintenance to preserve access to their own lawful work. Clear opt-in arrangements, time-limited commitments, and explicit handover or retirement choices are therefore not decorative ethical statements: they determine which practices may legitimately become part of the field.

5.5 Minimal Resource Commitments and Interfaces for Creative Work

An initial Commons requires more than a description of resources, but less than a full-service university-like institution. Its minimum supportive capacity is defined by the actual gaps between launchable seed practices and existing arrangements. A resource directory may be useful if its entries specify who can use each resource, under what conditions, and how current those conditions are. Yet a link to an inaccessible laboratory or an expired dataset cannot make an experiment feasible. Conversely, when a university already supplies adequate libraries, technical repositories, administrative support, and academic supervision, replicating these functions can increase maintenance costs without improving creative capability. The appropriate initial question is which missing interface prevents a concrete permissible activity from going forward, and whether that interface can be provided with proportionate effort.

Four capabilities can be considered as candidates, not mandatory subsystems. A *discovery interface* allows a potential user to identify legitimately shareable resources and opportunities. A *work-enabling interface* connects a willing actor to a suitable tool, workspace, simulation, collaborator, or other input necessary for a concrete practice. A *continuity interface* allows consented and appropriately licensed work to be documented, forked, transferred, or retired without binding its original contributor to permanent maintenance. A *circulation interface* allows an artifact or idea to be encountered by relevant external audiences and possible supporting organisations without claiming that their independent evaluations will be favourable. Each may be supplied through existing services, informal conventions, or a small amount of new infrastructure. Later chapters examine their specialised forms; the present concern is whether the seed field has enough to begin.

Consider an educational researcher who needs to test the logic of an instructional method. Public documents and an openly licensed synthetic simulation may be adequate for the initial stage. A Commons could provide a maintained index and an optional discussion venue, while the researcher's own university continues to supply computing facilities and professional judgement. Hospital access is unnecessary. If later there is interest in testing materials with staff, the proposed activity changes; the research may then require new agreements, participant protections, and evaluation permissions. Designing these two stages as independent preserves both the feasibility of the first and the authority boundaries of the second. A Commons that demands a hospital partner before any safe synthetic work can begin may be making

creation less, rather than more, feasible.

An initial resource commitment should have a named steward, a credible time horizon, explicit limits, and a closure arrangement. A shared code repository may need security updates and permission review. A physical prototype workspace may require safety supervision, storage, waste handling, and insurance or liability arrangements determined by the responsible institution. An inclusive public forum needs moderation, accessibility, and safeguards against disclosure of private information. Some resources carry fixed costs, while others increase maintenance work with each additional user. Those costs should be visible when deciding whether an apparently open resource is genuinely sustainable. Existing tools should be preferred only when they satisfy the relevant functionality and constraints; using them is not itself evidence that stewardship is solved.

The field must also admit legitimate non-reciprocity. A person may learn from an open resource without submitting a proposal; another may share a method and later cease involvement. The Commons can justifiably support these activities when they fit its publicly stated purposes and resource limits. It should not transform every access right into an exchange obligation. At the same time, limits cannot be ignored: when the ability to offer access is maintained by an exhausted volunteer or an unrecognised administrator, the apparent openness rests on an unstable allocation of burden. This is a problem of field design, not evidence of deficient generosity.

5.6 Evolutionary Search, Complementarity, and Endogenous Selection Conditions

The analogy to evolutionary computation is attractive because later combinations cannot always be predicted from initial practices. Genetic algorithms work with an initial population, operators that generate variation, a selection procedure, and a representation of candidates and environmental conditions. Holland (1992) offers a foundational account of this formal tradition. Yet the analogy becomes misleading if translated literally: unlike a candidate solution in a computational population, a person possesses rights, attachments, practical reasons, and legitimate claims that do not depend on comparative performance. Hospital norms also cannot be reduced to the optimiser’s choice of a fitness function. The analytic gain is to study how initial configurations affect the accessible region of subsequent experimentation, not to endorse algorithmic elimination of people or practices.

Evolutionary economics makes a related but distinct contribution. Nelson and Winter (1982) analyse routines, adaptation, and economic change without assuming that actors always solve a complete optimisation problem. March (1991) considers how an institutional preference for currently rewarded exploitation may displace exploration whose benefits are delayed or uncertain. In the present proposal, these traditions help formulate questions about the stabilisation of useful routines, the disappearance of neglected alternatives, and the feedback through which infrastructure changes what actors can attempt. They do not establish the empirical effectiveness of the Commons model, and neither is presented as the original source of the generative relational account of value in this paper.

To make the analogy disciplined, let $\Sigma_{c,t}$ denote the partially observed configurations that are actually active or ready to be launched under the field conditions $\mathcal{F}_{c,t}$. An exploratory transition can be represented as a relation rather than a fixed optimisation law:

$$(\mathcal{F}_{c,t+1}, \Sigma_{c,t+1}) \in \text{CoDevelop}_{c,t}(\mathcal{F}_{c,t}, \Sigma_{c,t}, \mathcal{A}_{c,t}, \mathcal{H}_{c,t}; \mathcal{B}_{c,t}), \quad (9)$$

where $\mathcal{A}_{c,t}$ denotes relevant voluntary and authorised actions, $\mathcal{H}_{c,t}$ the available historical information, and $\mathcal{B}_{c,t}$ the applicable constraints and resource limits. The relation is generally set-valued and incompletely known: more than one continuation may be consistent with the observed initial conditions, and some relevant possibilities may never enter the record. Equation (9) is a schema for describing co-development, not a predictive law or an algorithm for determining whom to fund. It is consistent with the broader field-evolution description in Section 2; its extra object is the differentiated set of initial and subsequent practices.

A seed portfolio may exhibit *diversity* when it permits distinct purposes, practices, forms of expertise, and routes of participation to coexist. It may exhibit *complementarity* when two activities could, if

their participants freely agree, exchange inputs or interpretations that advance their separate objectives. Diversity without viability yields a broad list of unrealised intentions. Viability without openness can produce an efficient but closed founding clique. Complementarity without legitimate boundaries can induce coercive demands that weaker participants support stronger ones. None of these concepts warrants a scalar index of social worth. They are provisional comparative criteria whose meaning depends on what actors can do and what risks and responsibilities their interactions create.

Selection conditions themselves may evolve. A documentation format that becomes widely used can make software contributions more visible than tacit service improvements. A budget rule that rewards early public attention can amplify already prominent disciplines. Successful collaborations can produce new channels for access and external recognition; neglected activities may lose those paths. In this sense, a Commons is not a neutral environment in which independent proposals simply compete. Its affordances, resource owners, conventions, and visibility mechanisms participate in shaping which possibilities become noticeable and supportable. The governance task includes examining and sometimes changing those conditions, rather than merely counting which activities survive them.

However, the frequent recurrence of a practice is not sufficient proof of its desirability or legitimacy. Understaffed personnel might repeatedly supply unpaid maintenance because the system leaves them no alternative. A highly visible technical project might receive extensive attention while an accessibility problem remains unheard. A seemingly stable institution can reproduce a damaging allocation of burdens. The selection criteria therefore need plural forms of evidence, dissent and contestation, and attention to constituencies that cannot readily submit a proposal. The possibility that a seed fails to expand may reflect a rational choice to remain small; the possibility that it ends may reflect successful completion rather than institutional failure.

5.7 Maintenance Labour, Access Inequality, and Initial Capture Risks

The apparently simple act of opening a common work environment redistributes responsibility. Someone receives questions, repairs links, moderates exchanges, checks the permissible scope of shared materials, and helps recover work when software or personnel change. These activities are not incidental afterthoughts. Infrastructural scholarship documents the importance of otherwise unobtrusive coordination and maintenance, while studies of classification and work arrangements show that visibility can be distributed unevenly (Star and Ruhleder, 1996; Star and Strauss, 1999; Jackson, 2014). An initial field which does not account for this work may be productive for some participants only because other participants bear uncompensated costs.

This problem is acute when the initial group contains unequal institutional positions. Students may see participation as relevant to future recommendations. Patients may feel obliged to cooperate with people who also influence their care. Volunteers may believe that declining a request from staff will threaten their standing. Staff may be invited to supervise enthusiastic but inexperienced collaborators without protected time. Consequently, the mere existence of an opt-out statement is insufficient evidence of freely chosen contribution. The practice configuration must consider how the request was made, what responsibilities the participant already carries, what alternatives exist, and whether the distribution of burdens can be questioned without penalty.

Initial capture can occur without deliberate exclusion. If every founding seed concerns engineering, designers may assume that only code repositories, prototype grants, and laboratory spaces count as Commons infrastructure. Education, artistic activity, community accessibility, or informal learning may then be classified as peripheral because they do not resemble the initial examples. Such path dependence can influence the apparent success of future proposals: technical work benefits from the original infrastructure and thus supplies more visible evidence in favour of further technical investment. The remedy is not a quota that mechanically gives equal resources to every field. It is an open, contestable procedure for asking whether prospective users face qualitatively different barriers and whether maintaining some exploratory capacity is justified.

Maintenance may also be concentrated in a single capable person. A small Commons can work well

Table 6: Illustrative initialization conditions and alternative interpretations. Cases are hypothetical, and “Commons response” does not imply institutional approval.

Situation	Initialization issue	Possible proportionate response
Empty submission platform	No actor has a sufficiently grounded reason or means to start work	Begin with a willing, self-standing practice or refrain from launching a new platform.
Single-discipline founders	Shared tools exist, but definitions of valuable contribution may exclude other fields	Keep admission and resource formats revisable; test barriers faced by other actors.
Independent education group	Public materials and ordinary university facilities already sustain the activity	Maintain the existing group; add only a demonstrably missing interface.
Student robotics simulation	Permitted digital work is feasible; physical hospital use remains unapproved	Support independent prototyping within lawful scope; treat deployment as a separate decision.
Volunteer improvement idea	Feedback is optional but might become extra performance pressure	Use the existing permitted channel and protect the right not to submit or maintain a project.
Unrecognised maintenance	Platform output grows while a few maintainers bear increasing cost	Expose stewardship load, allocate feasible support, simplify tools, or close the unsupported service.
Unfamiliar community practice	Founding categories do not accommodate a legitimate non-academic activity	Provide a comprehensible route for new practices without promising unlimited resources.

under that arrangement for a bounded time, but if the person leaves, the resource may become inaccessible. An honest seed description should therefore disclose whether there is a replacement, transfer, archival, or closure path. Contributions do not obligate their creators to become indefinite custodians. A functioning initial field may be deliberately temporary, with a planned conclusion after a workshop or release. Stewardship is successful when responsibilities are intelligible and proportionate, not simply when infrastructure remains online forever.

5.8 Comparative Initialization Cases and Failure Conditions

A preliminary design should allow the possibility that a Commons adds no value compared with an existing arrangement. Table 6 develops hypothetical cases with contrasting reasons for creating, limiting, or declining an initial field. Their status is explicitly conceptual; they do not report observations from any hospital. Each case suggests an empirical distinction to investigate before committing resources to new platform functions.

The first and third cases are particularly important because they challenge the assumption that a dedicated Commons is the default answer. If the ordinary education group achieves its objectives with less administrative work, the proposed extra organisation has not shown a sufficient reason to exist. The robotics case distinguishes a valid creative seed from an invalid inference of operational permission. The maintenance case shows how visible outputs and short-term participation may coexist with a degrading capacity to support future work. The community case examines whether an ostensibly open platform is meaningful to persons whose practices do not match the founders’ disciplinary assumptions.

These cases also reveal why one-dimensional success metrics are inappropriate. The number of seeds that become formal projects does not measure whether participants were free to refuse. The number of submitted ideas does not reveal which needs remained unexpressed. The persistence of a routine does not verify its safety. A comparison must examine the work and permissions of the people involved, the practical alternatives available to them, and the time horizon over which costs and possible benefits emerge. The intended contribution of the proposed field lies in conditions it enables that were not adequately available elsewhere, not in the expansion of its organisational boundary for its own sake.

5.9 Evaluation Protocol and the Boundary of Initial Design

A prospective evaluation can compare three starting configurations for a set of fictional or later appropriately authorised real-world tasks: an existing resource-and-contact baseline, a lean Commons with a few self-standing seeds and bounded support, and a more elaborate Commons with mandatory proposal procedures and additional shared services. The tasks should be drawn from heterogeneous domains and matched for information availability. For each configuration, evaluators would identify what the actor was actually able and permitted to attempt, what work was required, which people carried additional maintenance burdens, what evidence was available for outcomes, and which interfaces depended on institutional decisions outside the Commons. Where such data cannot ethically be collected, the corresponding proposition remains untested rather than inferred.

The opportunity vocabulary of Equation (7) offers one candidate comparator. For each participating subject, the analysis can ask whether a proposed field actually creates feasible and suitably permitted activities that the baseline arrangement lacked. The reverse difference also matters: administrative requirements, restricted sharing, time costs, or gatekeeping can remove opportunities that had previously been available. The test should therefore inspect both $\Omega(\mathcal{F}^1) \setminus \Omega(\mathcal{F}^0)$ and $\Omega(\mathcal{F}^0) \setminus \Omega(\mathcal{F}^1)$, together with the distributions of costs and benefits and qualitative evidence about why participants did or did not act. Neither difference is by itself a welfare score.

Three discriminating hypotheses are worth retaining. First, a lean seeded field may support more *usable* creative opportunities than an empty proposal platform because a practice can proceed independently of future recruitment; if a conventional work group offers the same opportunities at lower cost, the Commons hypothesis lacks incremental support in that context. Second, preserving open positions and revisable conventions may allow later practices with different needs to find appropriate entry paths; if these positions are nominal and only founders can obtain resources, the claimed openness fails. Third, explicit stewardship and rights boundaries may prevent hidden burdens or unsafe scope changes; if these safeguards are merely formal while the working routines coerce participation or bypass competent authority, the design is not functioning as proposed. These are research expectations rather than estimated effects.

The findings could also revise the initial theory. If a permissive seed portfolio fails because participants need substantially more structured mentoring, the field may require new creation-enabling resources rather than greater autonomy alone. If the Commons duplicates existing university tools, its own architecture should be reduced. If participants repeatedly create unanticipated value beyond the founding contexts, the framework must allow their activity to change both the practical field and the categories used to describe it. A negative case is therefore useful for theory–practice co-development, provided that it is not recoded as evidence of success by redefining value after the outcome is known.

An initial Commons consequently need not predict the eventual shape of its institutional ecology. It requires a credible reason for at least some activities to begin, enough resource and stewardship support for those activities, safeguards that preserve legitimate authority and autonomy, and a way to reconsider its original priorities. What can emerge later remains partly dependent on unanticipated histories, external institutions, independent value judgments, and the choices of participants who may leave. Chapter 6 will address the specialised creation-enabling infrastructure by which professional actors could turn feasible intentions into sustained work. The following chapters then examine problem and proposal interfaces, artifact trajectories, cooperative norms, external circulation, and resource reproduction without treating those developments as predetermined by the initial design.

6 Generative Infrastructure for Professional Practice and Value Creation

The purpose of this chapter is to examine how an evolutionary university hospital Commons might provide conditions under which heterogeneous subjects can actually undertake creative work. The problem is more demanding than making an existing resource searchable. A teacher may discover an instructional archive without acquiring a suitable setting in which to test a teaching method; a student may

download open-source robotics code but lack a safe space, compatible parts, or advice about its limitations; a volunteer may observe a service problem but lack the time, authority, or desire to develop a solution. A proposal portal would not, by itself, address these differences. The analysis therefore begins with activities that have reasons to exist independently of the Commons and asks what additional *enabling conditions*, if any, a shared field could provide. Building on the situated opportunity sets in Section 4 and the launchable seed configurations in Section 5, the chapter develops a vocabulary of usable resource bundles, examines professional and material affordances, considers support for independent and collaborative work, and specifies comparative evidence by which a proposed Commons could fail to add meaningful capability. It is an analysis of possible institutional design, not an account of services available at a particular hospital.

6.1 Situated Work Units and Professional Needs

A field designed for creative activity should be examined through the work that subjects wish, and are in a position, to do. A *work unit* in this analysis is a bounded, describable activity with a provisional purpose and a plausible next action: constructing a training exercise from synthetic material, building a small physical prototype, producing a multilingual public-information illustration, evaluating a publicly available organisational document, or creating an artwork for a voluntarily organised event. The word “unit” is analytical rather than managerial. It does not imply an assigned task, a contractual deliverable, or a partition of every person’s activity into comparable outputs. Creative practice may begin before the actor can define its final object and may generate questions that revise its original purpose.

For an educational researcher, an initial work unit may involve an independently motivated investigation of adults’ learning from procedural examples. A plausible required bundle includes an accessible corpus of suitably licensed examples, a way to construct alternative explanations, a means of testing them with synthetic learners or voluntary peers, and time for interpretation. The hospital’s operational involvement is not intrinsic to the inquiry. A later study of actual staff training would be a separate work unit with different participants, permissions, evaluation methods, and responsibilities. Neither the importance of the educational research nor the availability of a Commons automatically creates an obligation for hospital educators to supply participants.

For a student interested in robotics, the initial unit may be a simulation, an open mechanical design, a computer-vision exercise on non-sensitive images, or a desktop prototype. A robot intended to operate near patients is a different undertaking requiring appropriately competent safety assessment, site permission, supervision where applicable, and assessment of the proposed use. The Commons might support the initial unit through existing computing facilities, reusable designs, access to a suitable fabrication venue, or a technical consultation. It should not allow the same project name or repository to obscure the boundary between independent prototyping and an authorised hospital deployment (World Health Organization, 2021).

For an artist, community participant, or volunteer, the meaningful unit might be much less readily expressed as a research project. A collaboratively made drawing, a translated public document, or a suggestion about an existing activity can have value even where there is no publication, patent, or device prototype. A person completing ordinary agreed service tasks should not be redescribed as a latent developer obliged to supply unpaid innovation. The field’s first obligation is to keep the agreed task and an optional creative contribution distinct, including when an enthusiastic supervisor regards the extra work as beneficial. Consequently, professional need is understood broadly as a relation among activities, skills, time, resources, recognised constraints, and participants’ independent purposes, not as an inventory of prestigious disciplines.

6.2 Infrastructure Affordances and Usable Resource Bundles

Infrastructure studies show why the existence of a technical system cannot be equated with its effective integration into practice. In their study of a distributed scientific information system, Star and Ruhleder (1996) identify difficulties of situated access and infrastructural fit even where interface evaluation is

favourable. These findings caution against substituting a list of installed features for evidence that a specific person can use them. Infrastructure also requires standards, compatible formats, custodianship, ongoing repair, local knowledge, and social arrangements that are liable to become invisible when a platform appears to function smoothly (Star and Strauss, 1999; Jackson, 2014). The present proposal extends this analytical attention to heterogeneous university hospital Commons activities; it does not claim to originate the general insight that infrastructures are relational.

For each activity, several resource conditions may matter jointly. *Discoverability* concerns whether a person can find a potentially relevant resource. *Eligibility and permission* concern whether the proposed person, purpose, context, and time fall within a competent access decision. *Practical usability* concerns equipment, formats, language, accessibility, supervision where needed, and the actor’s means of making use of the resource. *Complementarity* concerns whether the combination provides what the activity requires: a suitable dataset without tools or a laboratory without qualified support may be insufficient. *Continuity* concerns whether the work can be resumed or responsibly closed without relying on promises of indefinite institutional support. These distinctions remain separate even when a convenient catalogue presents them on one screen.

A deliberately partial feasibility description makes these conditions explicit. For a subject s , work unit p , context c , and time t , let $\rho_{p,c,t}$ denote an activity-specific list of required capabilities, and let B be a proposed bundle of resources and arrangements. Define

$$\begin{aligned} \mathfrak{B}_{s,p,c,t}^{\text{supp}} = \{ B \mid & \text{Fit}_{c,t}(B, \rho_{p,c,t}) = \text{supported}, \\ & \text{Access}_{s,p,c,t}(B) = \text{supported}, \\ & \text{Means}_{s,p,c,t}(B) = \text{supported}, \\ & \text{Steward}_{p,c,t}(B) = \text{supported} \}. \end{aligned} \quad (10)$$

Here *Fit* records evidence that the proposed bundle covers the activity’s material and informational requirements; *Access* records suitably scoped permissions for the proposed use; *Means* covers presently available competence, time, accessible formats, and other means of action; and *Steward* covers the acceptance and practical supportability of necessary maintenance or supervision. A result marked *supported* is an evidentiary status within a stated review, not a judicial determination or a guarantee of actual success. Unknown, disputed, and explicitly disallowed conditions remain distinguishable. A resource with a public URL does not itself produce a supported result for a restricted form of use.

Equation (10) is intentionally activity-relative. The same software repository may be a sufficient enabling input for an independent desk simulation, an incomplete input for the production of a physical robot, and an irrelevant source of permission for operating equipment inside a hospital. Nor do the predicates specify a universal minimum bundle; the requirements must be obtained from the activity and the relevant institutional context. An incomplete bundle may still have exploratory value, but its missing elements should not be concealed by declaring the whole project ready. The special role of a Commons, where it has one, is to help assemble or connect the relevant conditions, not to certify competence by the presence of catalogued resources.

6.3 Enabling Workspaces Across Heterogeneous Practices

A Commons may need several types of working environment without owning one comprehensive facility. An educational researcher might need a versioned set of lawful teaching examples, an accessible workspace for comparing instructional designs, and the possibility of obtaining appropriate feedback. A software developer may require a reproducible computational environment, test data that do not disclose protected information, access to suitable libraries, and a means of distinguishing experimental from deployment-ready code. A physical maker may need fabrication equipment, materials, electrical or mechanical safety arrangements, storage, and a venue where prototypes can be tested without endangering others. A community artist may need a physical meeting space, accessible materials, permission to use a venue, and an agreed means of attributing or presenting a collaborative work. A volunteer who wishes

Table 7: Illustrative work units and enabling conditions. The examples specify possible support interfaces, not hospital services claimed to exist or permissions automatically granted.

Work unit	Potential enabling combination	Distinct boundary or countercase
Educational exercise	Lawfully reusable instructional cases, editing or simulation tools, optional specialist feedback	Actual staff or patient evaluation is a separate approved activity
Software or robotics model	Open technical material, compute, version tools, testing and fault reports	Physical prototypes require safe testing; clinical deployment is separately authorised
Service improvement suggestion	Accessible, non-coercive expression and responsible acknowledgement	Existing service-feedback arrangements may be adequate
Artistic or community work	Suitable materials, venue, contributor agreement, accessible modes of participation	Public presentation and reuse may need distinct consent and rights decisions
Legal or organisational inquiry	Public policies, comparative sources, interpretive discussion and protected time	Research opinion does not authorise institutional action
Accessibility or language tool	Accessible templates, lawful test texts, user-centred review opportunities	Participation and protected information cannot be assumed available

to communicate an ordinary operational concern may need no creative workbench at all: an appropriate existing feedback channel might suffice.

The matrix in Table 7 implies a design pattern that is modular but not department-centred. The field could publish information about available tools and responsible contact points, refer users to pre-existing university or public infrastructure, provide a modest shared workspace for lawful independent experimentation, or arrange a bounded interface with a willing professional group. The specific choice depends on what subjects need and on whether another institution can already supply the same service. A physical prototype need not become a hospital Commons programme merely because its inventor once volunteered in a hospital. An educational method can remain a worthwhile scholarly result even if a hospital cannot test it. Such distinctions protect both independent inquiry and the mission-specific competence of the institution.

Material artifacts also introduce care duties that are less visible in purely informational descriptions. A robot chassis requires storage and handling; a 3D printer requires supervision, consumables, maintenance, and appropriate safety procedures; a shared dataset requires documentation and perhaps periodic correction. The infrastructure must therefore include responsibility for the *conditions of work*, not merely a mechanism for announcing opportunities. Where no one has legitimately accepted these obligations and no budget exists for them, the purported resource may not be practically available, regardless of its appearance in a platform catalogue. This point is particularly important when necessary custodial work might otherwise be displaced onto volunteers or junior staff.

6.4 Capability Interfaces, Professional Boundaries, and Mutual Learning

Some creative activities become possible only when complementary skills or settings are connected. An educator can formulate a learning problem but lack technical expertise to create a simulation; an engineering student may construct a prototype but lack the educational concepts required to assess whether the interface helps learners; a community participant may understand a recurring difficulty that professionals do not directly encounter. A Commons could make an appropriate introduction or shared non-sensitive artifact possible. However, creating a contact list does not create a collaboration, and the institution should not treat professional consultation as an unlimited public resource.

Carlile (2004) distinguishes knowledge transfer, translation, and transformation across syntactic, semantic, and pragmatic boundaries. In the proposed Commons, different technical vocabularies can sometimes be addressed through shared descriptions; differences of meaning may require dialogue; conflicts

of interests, professional obligations, and consequences may require explicit negotiation and competent decisions. A glossary may help explain a robot's technical operation to an educator, but it cannot determine whether a hospital department should use it. Similarly, a lawyer's interpretation of a policy can inform a proposed activity without itself becoming an institutional authorisation. The infrastructural task is to preserve the boundaries among informing, advising, agreeing, and deciding.

A minimal capability interface might therefore include a description of the actual question, the kind of expertise sought, limits on time and data sharing, a voluntary and revocable invitation, and a record of what was and was not agreed. It need not introduce a mandatory committee for every conversation. Informal exchanges about published or synthetic materials may be possible under existing rules, while access to restricted facilities, human participants, or institutional operating decisions requires distinct channels. An agreed refusal, nonresponse, or recommendation to use an existing pathway should be recognised as a legitimate outcome. Such restraint is an enabling feature: professionals are more likely to assess requests responsibly when the Commons does not silently convert expertise into an open-ended obligation.

This argument also concerns who can express a need. A database organised around formal disciplines may make educators and engineers visible while overlooking the expertise of technicians, patients, families, translators, and community participants. The field should be capable of accommodating requests expressed as practical difficulties or embodied experiences, without pretending that all such experiences are immediately researchable or freely publishable. Accessibility and language provisions can be essential to actual participation; formal eligibility alone does not settle whether the interface is usable. At the same time, a legitimate need does not create automatic access to private records or to another person's labour. The Commons's contribution is at most to support a suitable, voluntary, and bounded encounter where one was otherwise difficult.

Resource sufficiency and task completion. The relation between a professional need and an infrastructural response is best investigated through an actual or carefully bounded attempted task. Consider an educational researcher able to read a hospital's publicly released training guide. The ability to inspect the guide is not yet the ability to test a learning method: usable permission to adapt it, a non-sensitive teaching scenario, a suitable evaluation procedure, available time, and a person able to interpret the results may still be missing. A Commons interface has a defensible additional role only if it removes a specified constraint that the researcher's existing university environment cannot already remove at comparable burden. If an ordinary seminar, publicly licensed teaching example, and existing simulation tool suffice, a dedicated Commons teaching facility would repeat resources rather than enlarge the feasible work set of Equation (7).

This task-based test applies equally to work that leaves no reusable digital artifact. A voluntary art workshop might need an accessible room, a willing facilitator, appropriate materials, a bounded safeguarding arrangement, and time for participation; imposing a code-repository or proposal requirement would add no necessary creative capacity. A physical prototype may need professional supervision before using particular equipment, whereas the same creator can continue a software simulation independently. In each case, resources should be compared as a *fit to a legitimate activity*, not as a count of facilities nominally available. Nor does an observed completion prove that Commons infrastructure caused it: prior skills, independent support, and ordinary institutional provision remain competing explanations.

6.5 Practical Feasibility, Creative Autonomy, and Activity Transitions

The feasibility distinctions of Equation (10) can be related to the opportunity-set comparison in Equation (7). For a particular subject and activity, we may describe a candidate *supported feasible opportunity* as one for which at least one suitable bundle has been identified, with a credible next act, sufficient practical means, and no outstanding essential permission requirement within the proposed scope. This analytical characterisation does not imply that the actor wishes to proceed. Nor does completion of the

act guarantee a valuable result. The resulting separation is: a resource can be known, an access claim can be supported, a work unit can become feasible, a person can decide to act, and an outcome can be realised. Each transition requires additional grounds and may fail or remain unknown.

For example, a student may lawfully view a set of open robotic designs and possess the skills to modify them, while lacking a safe workshop or sufficient time. Even after obtaining these, the student may prefer another project. Conversely, a student may produce a useful teaching robot for a simulation environment but obtain no permission to test it in a clinical service area. These are neither necessarily failures of the Commons nor interchangeable project states. They illustrate why generic measures such as account numbers, downloads, proposals, completed prototypes, and operational adoption count different things. A single numerical “generation score” would obscure the distinctions analysed in Chapter 4.

Transitions in activity scope require particular care. Consider an initial independent educational exercise using fabricated cases. The researcher subsequently wishes to invite staff to test the tool, then considers use in a mandatory hospital orientation programme, and later proposes deployment in clinical operations. The physical artifact may be substantially unchanged, but the participants, institutional stakes, data protection requirements, and responsible decision makers change. A legitimate research conversation can thus precede an activity that requires fresh ethics or governance review. Prior repository access, Commons participation, and earlier approval for a smaller activity cannot be inherited as permissions for the new one. International patient-safety guidance supplies comparative design considerations, but actual legal and institutional requirements remain jurisdiction and activity specific (World Health Organization, 2021; World Medical Association, 2024; Council for International Organizations of Medical Sciences, 2016).

One consequence of separating feasibility from action is that the Commons need not pressure people to turn every available opportunity into a contribution. An educational researcher may simply use shared materials to complete a private or external publication. A volunteer may rely on a service handbook without proposing revisions. A community participant may attend an open event and never return. If public access was an authorised purpose and maintenance costs are acceptable, these can be defensible uses. The voluntary character of the field would be undermined by automatic requests for additional work, contribution rankings, or expectations that existing service duties should supply the Commons with an innovation workforce.

6.6 Continuity of Creative Work and Institutional Resource Limits

The capacity to begin creating does not necessarily include the capacity to continue. A simulation may depend on a single person’s local computer; an open teaching resource may be stored in a format no later contributor can edit; a fabricated device may become unusable when its original builder leaves. Infrastructure can make continuity more feasible through agreed formats, appropriate backup, accessible documentation, planned responsibility for shared material, and the possibility of transferring stewardship. Modular design and shared conventions can reduce some costs of combining independently produced artifacts, though they do not eliminate coordination problems or determine institutional legitimacy (Baldwin and Clark, 2000; Benkler, 2002).

The same point applies to physical and social work. A robot’s future modification may depend on the availability of spare parts or a place to store it. An artistic event may generate reusable methods, but its human relationships cannot be preserved as if they were software files. An established volunteer practice may remain intelligible through a concise procedure or experienced mentors, without requiring that every participant produce permanent digital records. The continuing conditions should match the activity’s material and relational form, rather than impose version-control logic on all subjects.

A Commons can also enable someone to resume independent development after leaving a formal role. In appropriate cases, public knowledge, the creator’s lawfully held work, an open collaboration channel, or time-limited access to non-sensitive tools may remain available. Such arrangements need a clear basis: former membership does not entitle a person to retain protected information, specialised equipment, institutional credentials, or ongoing staff assistance. Technical continuity and entitlement

to future access are different propositions. Rights in jointly produced material, maintenance of publicly offered resources, and the cost of continued support must be addressed explicitly rather than presumed. Chapters 7, 8, and 12 will examine proposal interfaces, creative trajectories, and long-run stewardship in greater detail; the present chapter is concerned with whether a bounded activity can retain a credible next step.

Maintenance is not a neutral residual. Someone must curate descriptions, repair tools, answer appropriate questions, update licences where needed, protect access boundaries, and close unused arrangements. Star and Strauss (1999) provide an established account of the visibility of work, while Jackson (2014) foregrounds repair and continuing infrastructure. Their contributions support the present concern with hidden labour but do not demonstrate any particular Commons's sustainability. A design that reduces a student's costs by transferring unacknowledged obligations to a nurse, technician, archivist, or unpaid volunteer may increase one person's feasible opportunities while reducing another's. The field's accounts should record responsibility and displaced work, not merely apparent benefits to its most visible creators.

6.7 Generative Relational Interpretation and Epistemic Boundaries

The three-level generative relational method constrains the interpretation of infrastructure in this chapter. At the *ontological level*, the paper suspends claims about the ultimate status of capabilities, needs, and social fields. The classification of resources and work units is a research abstraction responsive to a specified question; it does not assert that an individual's creativity is exhaustively represented by a set of infrastructural inputs. The Commons is not treated as an independent entity that produces value merely by existing.

At the level of *relational reality*, practical capability is historically conditioned. The same educational archive may become useful when an educator acquires methodological experience, when a new collaborator offers specialised advice, or when available time and equipment change. A prototype may be feasible in a university workshop but not within a hospital environment. These are differences in relations among agents, settings, artifacts, histories, and enforceable or accepted boundaries. Certain relations can generate new capabilities, while others can impede or exhaust them; the balance can change without a platform owner having designed the specific activity in advance.

At the level of *manifestation reality*, platform metrics, interviews, workshop records, permissions documentation, and artifact histories provide incomplete and differently situated access to those relations. A catalogue record is evidence of a published description, not of usability. An activity log can show that a test was reported, not that the test was scientifically valid. A permission record may support a limited proposition about access in a specific setting, not unlimited legal use. Reported improvements should therefore be compared with independent evidence about the person's prior means of action, actual permissions, reasonable costs, and observed activity. The three-level account guards against a common overreach: using a richer record of creative opportunities as proof that more valuable creation has occurred.

This account also indicates where the design proposal adds a question, rather than claiming to discover infrastructure's relational character for the first time. Existing infrastructure studies and knowledge-boundary scholarship already explain situated use, invisible work, and translation. The proposed contribution is to ask whether these distinctions can be combined with activity-specific permissions, heterogeneous forms of creation, and historical opportunity-set comparison to evaluate a university hospital Commons without presupposing one organisational architecture. The additional explanatory value is conditional. It would be limited if ordinary facilities, accessible guidance, and simple referral arrangements explain the same feasible activities and constraints equally well.

6.8 Comparative Infrastructure Configurations and Countercases

A useful comparison begins with the subject's concrete work unit rather than with the proposed platform. Consider three configurations. Under an *existing-capability baseline*, the researcher uses public

Table 8: Hypothetical infrastructure comparisons and discriminating counterexamples. No row reports an observed hospital outcome.

Illustrative condition	Proposed enabling claim	Rival explanation or adverse result
Researcher already has all necessary teaching tools	Shared catalogue may improve discovery	Existing university provision yields the same feasible work at lower cost
Open robotics files but no fabrication setting	Safe workspace access could enable a physical prototype	Available facilities remain unsuitable or require support beyond the Commons's means
A novice meets a willing specialist	Bounded advice could help translate an activity into workable steps	An ordinary mentorship relationship suffices, or the consultation creates uncompensated workload
Volunteer identifies a service concern	Accessible feedback can make expression possible	Normal service procedures are already effective, and no extra creative work is desired
Creative artifact exists after its maker leaves	Lawful documentation and stewardship can preserve a continuation option	Rights, storage, and maintenance are unresolved; archival preservation alone does not make resumption feasible
Prototype attracts widespread attention	More collaborators and resources may become accessible	Visibility distorts priorities or masks safety limits and hidden maintenance costs
A field excludes less credentialed participants	Interface redesign may expand feasible participation	New categories or moderation practices reproduce exclusion despite nominal openness

repositories, a university workspace, ordinary departmental contacts, and available facilities without a new Commons. Under a *minimal-interface configuration*, the same underlying services remain in place but their relevance, permission boundaries, and appropriate contact paths become more accessible. Under an *expanded-service configuration*, the Commons also maintains a dedicated shared workspace or specialised support. The second and third configurations entail additional stewardship costs and may introduce new conditions of access. More features are not a priori evidence of superiority.

These examples, summarised in Table 8, suggest evidence that a design study should seek. For each work unit, investigators should document the pre-existing resources, the subject's independently expressed purpose, the minimum conditions required, which conditions were actually provided, and which obligations or restrictions arose as a result. The same information should be collected for comparison arrangements so that a novel interface is not advantaged merely by better documentation. Relevant observations could include whether a permitted work unit became practically feasible, whether the actor chose to undertake it, whether extra coordination was required, whether an appropriate authority later approved an enlarged activity, and who bore the material and maintenance costs.

A prospective test might ask participating educators and makers to attempt clearly bounded, lawful, synthetic-material tasks with either an ordinary resource guide or a proposed Commons interface, subject to appropriate study approval where humans are recruited or evaluated. Feasible next actions, time to locate suitable resources, independent usability assessments, unmet permission requirements, and support hours could be compared. Qualitative accounts would be needed to interpret why participants rejected offers, faced unfamiliar professional boundaries, or created outcomes that a standard task metric missed. Such a design is not a claim that random assignment, staff participation, or access to hospital facilities has already been arranged. The causal comparisons would require a properly specified protocol and attention to selection, learning effects, and unequal initial conditions (Shadish et al., 2002; Yin, 2018).

The claim of an additional generative infrastructure would be weakened if participants with equal information and access achieve the same feasible activities through existing institutions at a lower total cost. It would also be weakened if the field produces many expressions of interest but no credible next steps, if promised resources remain unavailable, if participation requires uncompensated work, or if less

visible subjects lose meaningful opportunities. The analysis must allow an increase in opportunity for one group to coexist with a decrease for another. Such countercases are not exceptions to be solved by indiscriminately building a larger platform; they inform the choice to simplify, reallocate resources, or not build an additional Commons at all.

6.9 Professional Infrastructure as an Evolutionary Design Condition

The practical conclusion is a bounded one. Generative infrastructure is neither a list of resources nor an independent engine of desirable innovation. It is the context-dependent arrangement through which subjects can combine legitimate access, practical means, complementary expertise, material settings, accepted maintenance, and available time to undertake work they have their own reasons to pursue. A university hospital Commons may contribute when it remedies a material gap or an interface failure that pre-existing institutions leave unresolved. Its institutional value must nevertheless be compared against simpler alternatives, the burden imposed on others, and the possibility that useful work will remain independent of the hospital.

This chapter establishes neither a compulsory proposal regime nor an assumption that all creations should enter a common repository. Once a practical environment exists, participants may discover new problems and decide whether to express them, request feedback, develop artifacts, or cooperate. Those actions require distinct interfaces and histories. The next chapter examines problem formation, proposals, and feedback as optional relations among subjects, not as a universal sequence that every creator must follow. Later chapters consider the trajectories of artifacts, the emergence of practices, circulation beyond the field, and conditions for maintaining resources over time. In this sense, enabling the work unit is only one part of an evolutionary Commons: the initial field matters because it supports meaningful present action without claiming to govern all future uses or outcomes of the value that may emerge.

7 Problem Formation, Proposals, and Feedback Mechanisms

This chapter examines how a university hospital Commons might make emerging problems, suggestions, independent inquiries, and requests for cooperation expressible without requiring each expression to become a project or a claim on institutional resources. The design problem is not solved by installing an issue tracker. A person may have a concern without wishing to remedy it, a researcher may already have an independently motivated inquiry, and an institutional decision-maker may need to act through an existing safety or complaint procedure rather than through a Commons. The chapter analyses the emergence and representation of problems, distinguishes different forms of expression and their possible destinations, develops a bounded model of routing and response, and identifies circumstances in which existing facilities are preferable to an additional platform. It connects Chapter 6's situated work units with the creative trajectories examined in Chapter 8, while leaving the latter chapter the task of analysing artifacts, revisions, and sustained collaborative development. All arrangements here are proposed research designs, not accounts of an operating hospital system.

7.1 Problem Formation and the Plurality of Reasons for Expression

A platform can make a suggestion technically possible without supplying anyone with a reason to suggest something. In a university hospital, an educator may already be studying adult learning, an engineer may already be interested in indoor navigation, and a volunteer may have chosen to perform a definite service rather than to investigate service design. Their possible contributions do not begin with Commons registration. Some people may discover an interest through contact with a resource or another subject; others may remain uninterested after the same encounter. The motivational distinction developed in Section 3 therefore constrains the design of problem-expression infrastructure. It should lower avoidable barriers for persons who have reasons to express something, not produce a standing expectation that every participant identify problems and propose remedies.

The word *problem* is itself relational. A long queue may be understood as inconvenient by a visitor, as one dimension of clinical prioritisation by an employee, as an organisational phenomenon by a sociologist, and as an interface-design question by an engineer. These are neither interchangeable reports nor necessarily rival descriptions of one simple object. They may concern distinct temporal ranges, consequences, responsibilities, evidence, and measures of improvement. Likewise, a proposed robot may address a student’s desire to experiment, a maintenance worker’s interest in reducing repetitive movement, or an educator’s interest in teaching robotics. One need not choose a single legitimate purpose before an independent, non-operational prototype can be explored. If clinical or institutional action is proposed later, however, that action engages a different question of competence and authorisation.

Problem representation is consequential rather than neutral. Bacchi (2009) argues that policy proposals already contain representations of what constitutes a problem and of what may be left outside the frame. The present Commons analysis adopts this critical question as an established scholarly insight, then extends it to the design of optional expression interfaces. To say that a form solicits “inefficiencies” rather than “difficulties,” for example, invites different accounts of professional responsibility, labour, and patient experience. To solicit only innovations promising measurable savings may obscure concerns about dignity, accessibility, discomfort, or time that someone cannot easily quantify. A field should therefore be able to retain disagreement over the formulation of a problem rather than transforming an initial label into an institutionally certified diagnosis.

Expressions can also be valuable without yielding a project. A person may name an experience, ask a question, correct an inaccurate description, contest a proposed solution, or decline to share further detail. No generalised duty to improve the Commons follows from having encountered a resource or benefited from a shared facility. Hirschman (1970) provides an influential analysis of voice and exit as differing responses to organisational decline, but neither voice nor exit should be presumed freely accessible to persons facing dependency, differential status, or institutional pressure. A Commons seeking to preserve autonomy must avoid interpreting silence as endorsement, low proposal counts as lack of relevant needs, or refusal to collaborate as evidence against the legitimacy of a concern.

7.2 Expression Types and Situated Problem Claims

An analytical separation of expression types prevents the vocabulary of a project platform from silently absorbing activities with different purposes. An *observation* describes something perceived or recorded. A *question* requests understanding, often without implying that a defect exists. A *suggestion* presents a possible change without necessarily offering to implement it. A *complaint* can demand acknowledgement or redress for an experienced difficulty. A *creative idea* may be speculative and unrelated to a current operational need. A *collaboration proposal* invites other persons to undertake optional work. An *institutional action request* asks a competent entity to exercise a power that the Commons itself may not possess. An *incident or safety report* may trigger a separate reporting obligation or protected procedure. Even these categories overlap in practice: a communication may contain several distinct claims requiring different routes.

The classifications are neither psychological diagnoses nor predetermined merit rankings. They are descriptions of what kind of response a communication appears to request and what evidence might be needed to address it. A public contribution proposal and a confidential patient complaint should not be displayed in the same default repository merely because they share a topic. An educational researcher may publish a hypothetical teaching problem openly while declining to expose the people who inspired the inquiry. A volunteer’s informal suggestion can sometimes remain verbal, without creating a traceable public profile. Conversely, a formal safety concern must not lose its protected treatment because it was first expressed in language resembling an improvement idea.

A situated problem claim can be represented, provisionally, as a typed interpretive record. Let x denote an expression, c the relevant setting, and t the time at which an account is made. The analytical signature is

$$\text{PClaim}_{c,t}(x) = \langle \tau_x, o_x, \alpha_x, e_x, u_x, \chi_x \rangle, \quad (11)$$

where τ_x is an expression-type description, o_x the provisional object or situation, α_x the standpoint from which the claim is made or interpreted, e_x its stated evidence or experiential basis, u_x unresolved or disputed elements, and χ_x a disclosure and context constraint. The signature is a schema for analysis, not a requirement that every participant fill out six fields. Elements can be unspecified; accounts can be revised; and a claim's type can be contested. Where the person's identity is unnecessary, an appropriate pseudonymous or non-identifying account may be preferable. The field need not retain the original communication when retention would be unjustified or unsafe.

Equation (11) records an *interpretation of an expression*, not the ontological reality of the alleged problem or the validity of the proposed remedy. This matters across the three levels of generative relational analysis. At the level of *ontological suspension*, the paper does not establish the ultimate status of a problem or subjective experience by recording it. At the level of *relational reality*, people, institutions, historical experiences, and material constraints can jointly constitute consequential difficulties and opportunities independent of whether a platform captures them. At the level of *manifestation*, a message, interview account, drawing, photograph, or complaint record gives only partial, situated access to those relations. A quiet or inaccessible platform cannot be used as evidence that an underlying concern does not exist.

This approach also clarifies a potential ambiguity in the term *recognition*. A Commons may acknowledge that someone has raised a concern without recognising the factual accuracy of every assertion, agreeing with the suggested response, or certifying that an institution is responsible. Recognition of a person's opportunity to be heard and assessment of a substantive claim must remain separate. Likewise, accepting a research question for open discussion does not constitute an authorised recruitment, clinical study, or institutional implementation decision.

7.3 Plural Entry Routes and the Scope of Commons Mediation

A general-purpose proposal portal is only one possible means of entry. An adequately accessible field may include informal discussion, a short public question, a structured collaboration invitation, a document or code contribution, a moderated workshop, an offline conversation, a telephone or written communication path, or a reference to an existing service office. These possibilities should not be transformed into a universal intake apparatus. Their adequacy depends on who may use them, how much time they require, what kinds of disclosure they induce, and whether an already competent institution supplies a better route. Research on public participation distinguishes participants, communication methods, and connections to public action; those institutional differences are important even where a shared technical surface makes different procedures look alike (Fung, 2006; Organisation for Economic Co-operation and Development, 2022).

A proposed Commons should preserve the validity of ordinary channels. Institutional staff who are expected to report particular safety events must use the applicable reporting procedure; patients and families must retain established routes for complaints or assistance; researchers should retain ordinary scholarly and ethics processes; and student work should be able to proceed through appropriate academic channels. A Commons may provide neutral signposting where it is within its competence to do so, but a signpost is not a substitute decision-maker. It should not collect protected information merely to decide where someone ought to go, and it should not create a new delay between an urgent concern and the institution responsible for acting. The *World Health Organization's* guidance on patient-safety incident reporting also cautions that incident reports need careful interpretation if they are to support learning, a different task from operating an optional innovation forum (World Health Organization, 2020).

Accessibility concerns the whole relationship of entry, expression, and response, rather than only compliance with an online form specification. A person who cannot access the language of a portal, use a computer privately, or expose an identifiable complaint may be technically eligible to submit while practically excluded. Web accessibility guidelines can assist interface design, but do not by themselves ensure equivalent access for non-digital or socially constrained participants (World Wide Web Consortium, 2024b). Where a non-digital route is genuinely needed, it requires a responsible recipient and a

realistic workload. Adding a telephone line or an in-person drop box without allocating time to respond would create the appearance of inclusion while displacing costs onto an already burdened worker.

Expression should also be possible without volunteering for follow-up. A person may communicate an observation yet reasonably refuse a meeting, a co-design activity, or further contact. Optional collaboration can begin later if an actor independently wishes to pursue a question and appropriately scoped information can be shared. An independent education or engineering project may instead begin directly as creative work, with no preceding proposal and no institutional claim to its output. Thus the Commons has several possible entrances and many legitimate non-project outcomes.

Expression is not admission to a project. For the same observed difficulty, a subject may seek an answer, ask that a service concern be addressed, invite research collaboration, or simply make a private note. These choices have different audiences and commitments. A teaching researcher can independently construct a synthetic exercise without submitting a Commons proposal; a volunteer can send a suggestion through an existing feedback channel without agreeing to analyse it; a patient-safety concern must reach the appropriate accountable channel rather than being delayed by open discussion. The proposed interface is therefore a set of optional, bounded connections, not a funnel that converts every expression into a project. A useful comparison asks which requests would otherwise fail to reach a suitable recipient, which existing channels already respond adequately, and what additional response labour the Commons would impose.

7.4 Qualified Routing and Institutional Competence

Where a new expression mechanism would add value, the Commons needs a limited way to distinguish *discussion*, *possible collaboration*, *referral*, and *formal institutional action*. Their differences are substantive rather than decorative labels. A volunteer and a research student may be competent to exchange ideas about an open educational simulation, whereas neither is necessarily competent to approve access to hospital training records or to alter an operational service. Routing therefore concerns the admissibility of *considering* a communication in a particular setting, not the authority to implement its proposed outcome.

For an expression x , let $\mathcal{D}_{c,t}$ be the set of candidate receiving routes available in setting c at time t . Let **Scope** describe evidence that a route is appropriate to the expression type and purpose; **Disclose** the admissibility of the information proposed to be transferred; **Competence** the receiving route's capacity and mandate to consider such a matter; and **Capacity** the availability of an accountable recipient with a supportable response burden. Then define the set of *supported consideration routes* as

$$\begin{aligned} \mathcal{D}_{c,t}^{\text{consider}}(x) = \{d \in \mathcal{D}_{c,t} \mid & \text{Scope}_{c,t}(x, d) = \text{supported}, \\ & \text{Disclose}_{c,t}(x, d) = \text{supported}, \\ & \text{Competence}_{c,t}(x, d) = \text{supported}, \\ & \text{Capacity}_{c,t}(x, d) = \text{supported}\}. \end{aligned} \quad (12)$$

An evidential assessment of *supported* is conditional on the information, applicable rules, and decision-making arrangements actually checked. It is not a legal certificate issued by the Commons. An unknown or contested disclosure basis should not be treated as a supported transfer; an explicitly prohibited transfer is excluded. The record of why a route was considered is distinct from any later competent decision. In particular, inclusion of a route in Equation (12) does not mean that a person has accepted a collaboration, an institution has received a valid formal complaint, a protocol has received ethical approval, or an intervention may be performed.

The route set can be empty. That result may mean that an expression lacks sufficient context, all suitable recipients have declined, the information cannot be disclosed to the proposed audience, or a responsible receiving facility has not been identified. It does not mean that the speaker's experience is false or valueless. Where an existing safety or complaint route is compulsory or clearly more appropriate,

the Commons should indicate that boundary without pretending to administer the procedure. Under a jurisdiction and institutional setting requiring a specified form of reporting, the operative procedure is defined outside the proposed Commons model. *Refer separately* and *do not collect* can therefore be institutionally more responsible decisions than attempts to expand the Commons's intake capacity.

There is a second boundary between the mere possibility of directing information and a person's consent to be identified or contacted. A proposed routing interface should permit an individual to choose whether a question may be shown publicly, shared with a restricted group, passed to a named person, or kept outside the Commons altogether, subject to overriding obligations in the relevant setting. Describing a possible route must not turn personal data into a transferable Commons asset. Where a communication implicates others, the speaker's willingness alone may be insufficient to authorise disclosure of their information. The corresponding decision concerns the rights and authority of several relational parties, not just a toggle in a proposal form.

7.5 Feedback, Dissent, Non-Adoption, and Bounded Responsibility

Feedback infrastructure should not promise that submission leads to implementation. A more defensible initial commitment is to make the *kind of possible response* intelligible. Depending on the route and available resources, a reply may acknowledge receipt; request permissible clarification; provide an existing resource; explain that the matter belongs to another channel; invite optional discussion; identify a reason for deferring consideration; state that no Commons action will follow; or communicate a limited decision on a proposal. A contributor can also request that contact cease, or withdraw from a voluntary collaboration, without having to argue that the concern was unimportant. An acknowledgement is not an admission of factual accuracy, and a reasoned refusal is not proof that the originating expression lacked value.

An accountable response requires clarity about roles but need not create a committee for every idea. A limited steward may undertake to provide a reply within a stated scope, or may openly state that the Commons has no capacity to review unsolicited proposals. A simple shared document with an identified maintainer may be sufficient for a small educational group. A public issue tracker may suit a project where open technical criticism is expected and safe; it may be unsuitable for personal experiences or institutionally sensitive matters. Non-adoption can also preserve capacity. For example, an engineering student might describe an ambitious robotic system for use on wards. A Commons discussion can value the underlying design effort while declining to support real-world deployment, leaving only lawful simulation or an independently authorised path open. This is not a failure to honour every proposal.

The difference between *response closure* and *problem resolution* deserves special attention. Closing a discussion thread may indicate that further discussion is not supported, that the authors have withdrawn, that responsibility was transferred through an appropriate procedure, or that the proposed response was declined. It does not establish that the initial concern disappeared. Similarly, keeping an issue open indefinitely is not evidence of ongoing stewardship. A responsible minimal design should make such meanings distinguishable in both contributor communications and any analytic records, without demanding that every conversation become an elaborate lifecycle object.

Dissent should be preserved at the level appropriate to the activity. Where a proposed translation, educational material, or prototype attracts conflicting interpretations, the difference need not be immediately resolved into a single position. It may reveal divergent affected groups, competing practical goals, or unknown effects. A feedback interface that records only endorsements and implementation decisions will systematically omit this information. Carlile (2004) distinguishes the problems of transferring, translating, and transforming knowledge across boundaries; a negative or hesitant response may reveal a need for substantive transformation rather than a communication failure. The present model therefore regards reasoned disagreement and appropriate non-adoption as possible outcomes of genuine exchange, not merely obstacles to the throughput of submissions.

The provision of responses also consumes labour. Suggestions must be read, sensitive information handled, expectations clarified, and difficult refusals communicated. These tasks are easily assigned

implicitly to volunteer coordinators, administrative assistants, clinicians, or enthusiastic students who already have other responsibilities. The field's initial resources should therefore include a bounded maintenance commitment before advertising a new response service. If that commitment is absent, an honestly passive repository or a link to an existing channel may be preferable to soliciting material that nobody has agreed to review. The opportunity cost borne by stewards is part of the generative conditions analysed in Section 6, not an externality invisible to the Commons design.

7.6 Authority, Safety, and the Ethics of Problem Reception

Problems noticed in a university hospital may concern unequal treatment, uncomfortable working conditions, ineffective training, a seemingly unsafe process, an accessibility barrier, or a possible technical improvement. The fact that these accounts appear in one institutional environment does not make them suitable for a common evidentiary or disclosure regime. For example, a suggestion to simplify a publicly distributed leaflet can often be discussed using the leaflet itself. A concern involving identifiable patient experiences may require restrictive handling. A suspected immediate safety risk should be directed toward the relevant competent procedure rather than presented as a publicly discussable challenge for volunteer developers. World Health Organization (2021, 2020) provide international patient-safety context; they are not universal domestic authorisations for a newly proposed Commons.

Several ethical and institutional distinctions follow. Participation in a feedback event is not consent to an unrelated research use of the person's remarks. A publicly expressed problem is not permission to recruit a patient, interrogate an employee, or extract records. The potential research value of a clinical concern does not dissolve applicable obligations concerning confidentiality and safety. Nor does a Commons moderator's judgement about an engineering idea replace assessment by a person or body with authority to approve experimental or operational use. Where proposed activity becomes health-related human-participant research, appropriate ethical review and consent requirements must be determined in the relevant jurisdiction and organisational setting rather than inferred from open collaboration conventions (World Medical Association, 2024; Council for International Organizations of Medical Sciences, 2016).

The power structure of reception also matters. An employee may hesitate to criticise an institution on a platform observed by supervisors; a patient may fear consequences for ongoing care; a student may believe that proposing extra labour will please an evaluator; and a volunteer may perceive refusal as socially costly. A proposal count collected under these conditions is not a neutral measure of demand. Protections for appropriate confidentiality, alternative channels, separation from grading or staff appraisal, and clear voluntary-participation terms matter, but they are not always sufficient. Some persons will rationally avoid a Commons intake altogether. Such decisions must remain possible without disadvantage, subject to independent formal duties defined elsewhere.

There is also a risk that the Commons will gradually appropriate the language of those raising concerns. An account of fatigue could be recast exclusively as a productivity issue; a complaint about unequal access could be renamed a "user-experience feature request." The institution might then claim improvement while leaving the complainant's substantive concern unaddressed. The analytical schema in Equation (11) is therefore explicitly revisable and provenance-sensitive: where safe and appropriate, a reformulation should remain identifiable as an interpretation by a particular actor rather than being presented as the contributor's original meaning. An author's choice not to publish a personal account remains distinct from a field administrator's desire for transparent records.

7.7 Problem Expression and Creative Activity in Comparative Scenarios

The preceding distinctions can be tested against illustrative cases that begin with different motivations and conclude with different legitimate outcomes. Table 9 compares entry, possible Commons support, and a boundary that the proposed field should not cross. These cases are counterfactual design probes, not evidence that any named university hospital, volunteer programme, student group, or external agency has undertaken the activities.

Table 9: Illustrative problem-expression configurations and the limits of optional Commons response. The scenarios are conceptual tests, not reported practices or promised services.

Entry circumstance	Potentially useful Commons response	Boundary or competing route
Education researcher with an independent instructional question	Connect to lawful public or synthetic materials; permit open discussion or independent development	No presumption of access to learners, staff training files, or an institutional research endorsement
Student's exploratory robotics idea	Provide optional technical discussion and links to existing laboratory or open development resources	No permission to test around patients or use hospital equipment without appropriate authorisation
Volunteer observes confusing public-facing instructions	Offer optional anonymous or named feedback as suitable; point to the responsible public-information steward	Do not add a compulsory improvement task to an agreed service role
Patient raises a sensitive complaint	Indicate an existing competent and protected route, without publicly republishing the complaint	A Commons project forum is not a substitute for a complaint or safety procedure
Artist proposes a community event	Offer access information and an optional collaborator contact where a legitimate venue exists	No obligation to supply space, labour, or participant access
Established laboratory already has suitable issue tracking	Avoid duplicating its established processes; interoperate only where a genuine gap exists	A new Commons ticketing layer could add delay, confusion, and unnecessary records

The educational case illustrates how a creative activity can precede any expression to the Commons. The robotics case shows how a question can move toward a tangible artifact without acquiring operational authority. The volunteer case distinguishes potentially useful feedback from an additional work obligation. The patient case demonstrates the limits of sharing as a default response to participation. The artist case prevents an overly research-centric conception of public value. The last case is deliberately negative: it asks whether a Commons proposal interface has any independent function where ordinary laboratory infrastructure is adequate.

Consider also an ambiguous statement such as “the induction process is difficult.” It may concern the content of teaching materials, language accessibility, staff time, inconsistent instructions, interpersonal treatment, or the speaker’s unfamiliarity with an unfamiliar environment. A researcher might wish to investigate educational design; a staff member might have authority to clarify the instructions; a participant might simply wish the experience to be acknowledged. A field that automatically converts the statement into an “induction optimisation project” would erase several distinct possibilities. A modest conversational response may be more generative than a fully automated referral, because it allows a more accurate or differently situated problem account to emerge. If the participant does not want further discussion, that choice should remain an admissible end point.

These cases also specify where the present field model should *not* explain an outcome. An existing hospital complaint service may already supply accountable acknowledgement and appeal. A university laboratory may already have a funded collaborator network. An academic discussion group may already be able to exchange independent research questions in a meeting. In such circumstances, duplicating a Commons intake function could consume resources while producing no additional feasible creative activity. The model’s claim to explanatory or design value depends on identifying cases where an otherwise unsupported relationship or creative opportunity is made available, not on renaming existing activity as

Commons participation.

7.8 Comparative Evaluation and Rival Explanations

An evaluation of proposed expression and feedback arrangements should be designed so that the Commons can lose to simpler alternatives. One feasible preliminary method is a set of carefully constructed, fictional records representing the same underlying situations through several information environments: an ordinary narrative email or conversation, a minimal shared document or issue tracker, an existing institutionally competent service channel, and a typed Commons interface. Reviewers would be given the same permissible facts and asked to distinguish the kind of expression, reasonable next response, confidentiality constraints, uncertainty, decision-maker competence, and whether any additional work is optional. Their performance would be compared on interpretive error, inappropriate referral, wrongful disclosure suggestions, false promises of implementation, avoidable delay, and review effort. Such exercises would test analytical discrimination; they would not establish that the Commons works in a real hospital.

The design also needs measures that do not reward submission volume for its own sake. Possible observations include the proportion of eligible concerns receiving an intelligible response within a realistically promised scope, whether contributors understand the consequences of submitting, the ability to redirect a sensitive concern without copying its content into a public repository, the frequency of unwanted follow-up, and the maintenance hours required per response. One may also examine whether a new route increases the availability of suitable, voluntary creative opportunities relative to a credible existing-channel baseline. A lower submission rate accompanied by improved clarity, protection, or reduced burden could be a favourable outcome; a higher submission rate with unresolved labour and unsafe disclosures could be unfavourable. No scalar “feedback productivity” measure adequately substitutes for these distinct concerns.

Several disconfirming cases are especially important. If an existing patient complaint or safety-reporting procedure already handles a concern more safely and accountably, the Commons should not claim added value for duplicating it. If ordinary laboratory issue tracking achieves comparable understanding of open engineering ideas at lower coordination cost, the proposed routing model has no demonstrated incremental advantage there. If a field mostly receives proposals from already powerful, well-resourced actors while people with more immediate needs avoid it, nominal openness may have reproduced asymmetry rather than broadened opportunity. If participants report that the possibility of submitting an idea has been converted into an expectation of unpaid additional work, the initial voluntariness condition has failed. These are not exceptional implementation defects outside the theory: they test the proposed relation between initial field conditions, expression, and independent creative capability.

For actual empirical evaluation, research classification, institutional cooperation, and data governance would need to be resolved before collecting identifiable complaints, employment-related narratives, or accounts from patients and other potentially vulnerable people. Where those conditions are absent, public documentation and synthetic scenarios can provide useful but limited theoretical testing. Comparisons should also attend to the selection processes producing observed expressions: platform users and vocal contributors are not representative of everyone affected. In this respect, the very absence of feedback may be the object of inquiry, but it cannot be interpreted without independent evidence about access, trust, consequences of speaking, and available alternatives. Patton (2011) supplies a relevant established evaluation tradition for adapting interventions in complex circumstances; the Commons-specific hypotheses require their own evidentiary tests rather than borrowing validation from that literature.

7.9 Relational Formation and the Boundaries of Creative Continuation

A university hospital Commons need not receive a proposal before meaningful creative work begins. The distinctive role of a problem-expression field, where it is justified, is to make appropriate communication and responsive encounter possible among persons whose concerns, professional skills, and existing

opportunities may differ. Such encounters can sharpen a problem, establish a collaboration, or lead to an independent work unit; they can also result in clarification, refusal, protected referral, or silence. None of those outcomes should be automatically reclassified as a failed project. The possibilities are historically conditioned and remain subject to the legitimacy of relevant permissions and the capacity of stewards to respond.

The analysis therefore yields a limited design conclusion. Before building a proposal platform, a prospective Commons should identify which expressions cannot already be handled adequately through existing routes, which recipient has a bounded reason and capacity to respond, and what additional creative or relational opportunity the arrangement might actually enable. It should distinguish acknowledging a claim from verifying it, routing a concern from deciding it, and voluntary engagement from assigned service. These boundaries link the enabling conditions of Chapter 6 with the subsequent analysis of creative trajectories. Chapter 8 will ask how particular ideas, methods, practices, and artifacts can acquire continuity through revision and collaboration; this chapter has established only the conditions under which communication may appropriately open, redirect, or close such possibilities.

8 Creative Trajectories, Artifacts, and Collaborative Development

This chapter examines the forms of continuity through which a creative activity can remain intelligible, revisable, and open to further development without becoming a mandatory Commons project. Chapter 7 distinguished questions, suggestions, complaints, and collaboration requests, while Chapter 6 examined the conditions under which heterogeneous professional work becomes feasible. Neither the existence of a proposal nor the feasibility of a work unit explains what happens when an activity persists, separates into alternatives, changes hands, or becomes meaningful in another context. The object here is a *creative trajectory*: a partially reconstructible history of practices, artifacts, relationships, and transformations, including intervals of interruption and possible future continuation. The chapter distinguishes trajectories from formal projects, develops a limited vocabulary for artifacts and their derivations, considers optional collaboration and contribution attribution, and examines physical stewardship and institutional transitions. It then specifies rival explanations and evaluation conditions. The analysis concerns proposed Commons design capacities, not observed operation or approval by any hospital.

8.1 Creative Trajectories as Historical and Relational Objects

A student's robotics idea may begin in a conversation, become a sketch, develop into source code, produce a simulation, and later acquire a physical prototype. Yet the student may stop before fabrication, a second person may independently explore the same navigation problem, and the physical device may be repurposed as an educational demonstration. No one project identifier necessarily persists across these changes. Likewise, an educator's teaching exercise may be revised through classroom experience without producing a sequence of publishable versions; an artist's temporary installation may survive primarily through memories, agreements, photographs, and later reinterpretations; and a volunteer's practical method may continue as an informal routine rather than a named artifact. The proposed field must therefore avoid privileging documented software development as the canonical form of creative work.

For this paper, a *creative trajectory* is an analytically delimited, historically situated succession or network of activities and relational changes that may involve the making, testing, revising, abandoning, sharing, or reinterpretation of things, practices, or capacities. It does not require a predefined goal, continuously active participants, a registered Commons identity, a durable artifact, or verified beneficial output. Its delineation depends on the research question: one inquiry may focus on a software lineage, another on the changing practice of teaching new volunteers, and a third on the rediscovery of an artistic method outside the hospital setting. Delimitation is a research judgment to be justified, not an attribute automatically supplied by a database.

The distinction is important for generative relational interpretation. At the level of *ontological suspension*, a stored sequence cannot settle the ultimate status of creativity, a subject, or a value-bearing

object. At the level of *relational reality*, people, skills, materials, institutions, historical dependencies, and opportunities can form consequential structures whether or not a Commons documents them. At the level of *manifestation*, repositories, interviews, files, physical objects, and reports present partial accounts of those structures. A missing record does not establish that nothing occurred; a complete-looking sequence does not demonstrate a complete causal history. The relation between these levels is a standing constraint on the claims made throughout the chapter.

Evolutionary economics treats organisational routines, learning, and variation as consequential for institutional change (Nelson and Winter, 1982). Infrastructure studies also stress the significance of mundane, frequently unseen coordination and repair (Star and Strauss, 1999; Jackson, 2014). The argument advanced here draws on those established insights but asks a narrower design question: how can a possible Commons support multiple forms of creative continuation while avoiding compulsory documentation, unjustified institutional claims, or the conversion of varied practices into a single evaluative measure? The proposed contribution lies in the comparative interfaces among creation, historical evidence, permissions, continuation, and other settings of value recognition; it does not claim discovery of the underlying possibility of collaboration or path dependence.

8.2 Artifacts, Activities, Versions, and Derivative Relations

An *idea* may be an initial expression, not yet a reproducible technical design. An *activity* is work undertaken over some interval, including thinking, prototyping, discussing, performing, and maintaining. An *artifact* is something reasonably identifiable for the present inquiry, such as a drawing, source file, teaching guide, physical component, recorded performance, or collectively maintained procedure. An artifact may be unfinished, composite, or dependent on particular human practices. A *version* denotes a specified state of an artifact or documentation of a practice, relative to a declared comparison convention. A *branch* denotes a direction of subsequent development that a participant treats as distinguishable from another direction. A *derivative claim* alleges some historical dependency between objects or practices; a *contribution claim* concerns an agent's specific participation in work. These notions overlap but are not synonyms.

The distinction between the technical and relational meanings of versioning matters. A source-code repository can retain precise commits; a robot can have multiple electronic schematics linked to one physical chassis; a teaching method might change each time it is enacted; and a community performance can have no single authoritative final version. Version labels may be useful where stable references and reproducible revisions matter, but they need not determine what counts as the authentic continuation of a social practice. Bowker and Star's analysis of classification warns that classificatory schemes are themselves consequential choices rather than neutral containers (Bowker and Star, 1999). The Commons should therefore allow relevant participants to describe local conventions, identify ambiguities, and avoid treating a software-derived taxonomy as a universal ontology.

Version control illustrates one useful, bounded analogy. GitHub describes forks as separate spaces in which a person may work independently and later optionally propose changes to an upstream repository; the fork need not be merged into the original (GitHub, 2026). This supports our separation of autonomous exploration from collective adoption. It does not imply that the right to copy, modify, or distribute material follows from technical access. Nor does a merged change establish beneficial outcomes. Software Heritage's intrinsic software identifiers likewise help reference archived software objects at specific levels of granularity, but an identifier is neither a licensing instrument nor a quality assessment (Software Heritage, 2021). We consider these platforms as evidence of available technical approaches, not as institutions that the hospital Commons must replicate.

A proposed minimal vocabulary can record that a specific expression or artifact was mentioned, that an activity allegedly used or changed it, and that the subsequent object may depend on an earlier one. The W3C PROV ontology already provides interoperable terms for entities, activities, agents, derivations, and attributions (World Wide Web Consortium, 2013). The present framework has no reason to invent a rival universal provenance standard. Rather, it asks when such descriptions are needed, how disputed relations

should be represented, and which records are accessible to whom. The Commons may federate references to existing repositories, institutional archives, documentation systems, or physical inventories without ingesting their contents. Where ordinary records are sufficient, adding a separate cross-institutional trajectory service is unnecessary.

8.3 Partial Trajectory Records and the Limits of Historical Inference

To make the limitations explicit, let c be a context and t the time of documentation. Let **Act**, **Obj**, and **Subj** denote sets of described activities, objects or practices, and persons or collective agents, respectively. These are research-level types; an object may occupy different positions in different inquiries. Let **Claim** be the type of a revisable account and **Evidence** the type of evidence descriptors. For a disclosed or otherwise legitimate account r , we propose the analytical record

$$\text{Trace}_{c,t}(r) = \langle \tau_r, x_r, y_r, \rho_r, e_r, v_r, \chi_r \rangle, \quad (13)$$

where τ_r identifies whether the account concerns an activity, object, practice, or agent; x_r and y_r are the relevant, possibly missing referents; ρ_r is the *claimed* relation, such as revision, use, involvement, divergence, or reinterpretation; e_r describes available evidence; v_r records uncertainty, counterclaims, and the limits of reconstruction; and χ_r describes conditions on disclosure, retention, or access. A claim involving only one referent can leave the other unspecified. The type system does not require that every contribution be made public or recorded individually. In particular, a participant's preference not to be identified, or the absence of a lawful basis for disclosure, may justify a substantially reduced account or no Commons record at all.

A trajectory representation is then a selected, partial set of such records with situated linkage hypotheses:

$$\hat{\mathcal{T}}_{c,t}(q) = (\mathbf{R}_{c,t}(q), \mathbf{L}_{c,t}(q), \mathbf{U}_{c,t}(q)), \quad (14)$$

where q is a declared question or scope, $\mathbf{R}_{c,t}(q)$ is a set of admissibly represented records, $\mathbf{L}_{c,t}(q)$ a set of proposed links among records, and $\mathbf{U}_{c,t}(q)$ a specification of omissions, uncertainty, and known contestation. The hat denotes a reconstruction, not the complete actual history. The definition is not a mathematical assertion that unrecorded social histories form a discrete graph; it is a disciplined description of one way a researcher might encode recoverable claims for comparison. It makes no assumption that all real-world relationships are transitive, time-invariant, or publicly inspectable.

The distinction between *having a record* and *having a warranted link* is crucial. A repository may contain a drawing dated before a later design without proving that the later author saw the drawing. Two artifacts may resemble one another without direct derivation. An accepted contribution claim may settle how a particular project wishes to credit a participant while leaving a legal ownership question unresolved. Even timestamped digital histories can be incomplete when conversations, laboratory work, care work, material adjustments, or editorial choices took place elsewhere. PROV-O provides a language for representing provenance assertions; it does not independently validate that those assertions are true or ethically shareable (World Wide Web Consortium, 2013). A rigorous Commons would preserve this distinction in its explanatory material rather than marketing richer records as certified causal histories.

The same issue applies to time. The occurrence of an activity, the creation of a later account of it, the last successful verification of an artifact, and the validity period of an access decision may differ. A later discovery of an earlier drawing can change a historical reconstruction without changing the time when the drawing was made. A retroactive edit to an attribution record does not itself grant a past right to use protected material. Chapter 4 already distinguishes situated value claims from observed effects; the record model in Equations (13) and (14) similarly distinguishes the preservation of a possible creative history from proof that the trajectory generated value.

A possible downstream route should retain its reference to an identified, lawfully describable object or practice without converting the trace into proof of later reception. For instance, an early drawing and a later robot demonstration can be connected by a qualified dependency claim; they are not necessarily the same artifact for rights, safety or competence review. The candidate cross-record linkage in Section 11.4

is purpose-scoped for this reason. In the present chapter, the researcher's immediate task remains to justify the creative-history association rather than establish an external recipient's value judgment, resource commitment or usable permission.

8.4 Autonomous Branching, Collaborative Continuation, and Voluntary Exit

A field that supports creative continuation should not make inclusion in a single common project a condition of legitimate participation. A researcher may use an openly licensed teaching method to develop an independent study; an engineer may retain a permitted fork of a design without returning improvements to the original group; an artist may reinterpret a workshop method outside the institution. Whether any of these actions is permitted depends on the specific material, applicable rights, and context, not on a general slogan of openness. Where appropriate permissions exist, the possibility of independent continuation can reduce dependence on central coordinators, facilitate divergent experimentation, and preserve work when an original group no longer maintains it. Peer-production research explains important conditions of modular collaboration and heterogeneously motivated contribution (Benkler, 2002; von Hippel and von Krogh, 2003), but it does not establish that every hospital-based practice can or should be open to unbounded copying.

We can distinguish several voluntary continuation relations. *Private continuation* develops work without public disclosure. *Independent publication* makes a permitted result accessible without committing it to a common maintenance process. *Parallel development* allows different directions to coexist. *Contribution upstream* offers a change for review by an existing project or practice steward. *Collaborative succession* transfers some responsibility for development when the prior participant steps away. *Abandonment* leaves a trajectory dormant, whether because it is complete for its author, no longer feasible, unsafe, or simply uninteresting. These relations can occur sequentially or overlap; abandonment by one contributor need not mean a work has no future, and independent use does not establish an obligation to contribute back.

Collaboration must therefore be separately constituted. Availability of a repository, common employment, participation in hospital volunteer work, or a past friendly discussion does not amount to consent to ongoing co-development. The participants need clarity appropriate to the activity about responsibility for tasks, permitted uses, credit, maintenance commitments, expected communications, and a route for disagreement. For a short-lived tutorial, a brief notice may suffice. For the shared development of a complex physical system, more explicit arrangements may be warranted. The possibility of withdrawal should be meaningful: ending participation need not erase legitimate historical contributions, but it should not automatically require the person to keep maintaining a Commons artifact, surrender unrelated rights, or remain publicly contactable indefinitely.

The evolving field is not a substitute for those persons who already bear real organisational responsibilities. A nurse or volunteer may perform an agreed task and have no further time or wish to document improvements. A student may finish a prototype as part of a course without undertaking indefinite support. Where continuing stewardship is essential for an institutional service, it should be properly assigned and resourced rather than presumed to emerge from an informal Commons. The study of invisible labour suggests that a platform's visible contribution history can obscure the work required for coordination, cleaning, training, repair, and interpersonal support (Star and Strauss, 1999; Jackson, 2014). Metrics drawn only from commits, issues, or uploaded artifacts could amplify that exclusion.

8.5 Contribution, Attribution, Intellectual Rights, and Revision Disputes

The Commons might help a contributor record a drawing, an improvement suggestion, a teaching revision, or work on an engineering prototype. Such documentation can facilitate acknowledgement and later interpretation, but several distinct questions remain. *Attribution* concerns who is credited for a stated activity or artifact. *Authorship* can refer to a disciplinary publication convention or a legally relevant creative role, depending on context. *Ownership* concerns entitlements determined by applicable legal and contractual rules. *Licence* concerns a defined set of permissions that an authorised rights-holder may

grant. *Institutional approval* concerns decisions within a specific organisation's competence. These categories can affect each other but cannot be inferred directly from a single platform badge, commit history, participant profile, or Commons membership status.

For example, a repository may accurately show that a student uploaded mechanical drawings. It does not follow that the student owns all intellectual property in every component, that the design is free of third-party rights, or that a hospital may operate a resulting device. A student may have made an original contribution alongside university employees under agreements not reflected in the repository. A community participant may wish to be thanked without having their identity publicly indexed. Conversely, a shared design can incorporate stock components, code, datasets, images, and documentation subject to heterogeneous licences. Appropriate rights analysis must be scoped to each component and intended use; an open licence covering one document need not govern embedded code or a separately manufactured device.

Creative Commons BY 4.0 is an example of a legal instrument with defined licensed rights and express limitations. It does not itself grant patent or trademark rights, confer publicity or privacy permissions, or authorise claims of endorsement (Creative Commons, 2013). Different media may require different licensing or contractual arrangements. A user who changes a Commons artifact should not assume that the ability to make a technical copy permits every proposed publication, derivative, commercial application, or institutional use. Likewise, an organisation cannot legitimately solve conflicting rights claims merely by announcing a Commons-wide policy. The rights-holder's authority to licence, any conditions of participation, applicable employment or education agreements, third-party interests, and jurisdiction-specific obligations require separate consideration (World Intellectual Property Organization, 2026a,b).

A minimal contribution history should therefore permit qualified and disputed attribution, revision of metadata, and appropriately restricted records. It need not adjudicate authorship or ownership through an automatic ranking. If a participant disputes a claim or wishes to limit further disclosure, there should be an intelligible channel to contest the account and, where justified, correct or restrict it. Preserving evidence can be valuable, but unlimited public retention of names or work traces is not an ethical default. A revision history should make corrections comprehensible without guaranteeing public access to every earlier sensitive record. The field's normative authority remains bounded: ordinary rights and competent institutional procedures must prevail over claims implied by the platform's interface.

8.6 Physical Objects, Situated Practices, and Material Stewardship

Creative continuity depends on more than digital persistence. A robot may require a charging facility, replacement batteries, spare parts, firmware maintenance, mechanical inspection, and eventual disposal. A physical artwork may require exhibition space, conservation decisions, and agreements about photographs or later reuse. A volunteer-created information display may need periodic content updates and a named person to remove it when guidance changes. A classroom method may survive only if educators have time, pedagogical discretion, and adequate materials to enact it. These examples show that artifact storage, practice continuity, and institutional operation impose different resource and responsibility conditions.

A Commons can make such conditions visible without obligating itself to provide them all. Before accepting custody of physical equipment, it may need a clear account of possession, storage safety, insurance or liability arrangements where applicable, approved locations, maintenance capacity, hazardous or regulated components, access restrictions, and an end-of-life disposition path. A voluntarily deposited physical prototype does not thereby become hospital property or approved equipment. Conversely, a hospital department may have its own legitimate records and equipment-handling processes that should not be displaced by an informal Commons inventory. A small external workshop may be a more suitable site for experimental fabrication than a hospital building; an openly shared schematic can often continue without the original robot being retained on site.

Irreversibility is also material. Source files can sometimes be rolled back, but the disposal of a

prototype, alteration of a physical surface, or performance of an intervention may not be reversible. A record of an earlier physical state does not restore the object or undo consequences for people. Where an exploratory activity changes to a public demonstration, interaction with hospital visitors, staff evaluation, or operational deployment, the scale of permissions and safety review changes accordingly. The same physical artifact can be involved in several legally and ethically distinct activities. Prior authorisation for a simulated experiment is not transferable simply because the design lineage remains continuous. A Commons should be able to document that a new decision is needed while leaving the decision to the competent body.

The maintenance issue becomes especially important when the original contributor leaves. Conditional post-participation access may support later study or development where it is legitimate and sustainable; it does not preserve occupational, clinical, or restricted-data permissions whose original basis has ended. A dormant physical object need not be retained indefinitely in anticipation of possible future use. A responsible design can offer orderly transfer, permitted external publication, archival selection, safe disposal, or closure. Each path can maintain some historical intelligibility without pretending that material preservation is costless.

The status of a *creative trace* also differs across media. A software branch has an inspectable file history; an improvised translation of a volunteer instruction, an ephemeral community performance, or a change in how people welcome visitors may be carried primarily in skill, memory, physical arrangement, and participants' accounts. Requiring each activity to generate commits, publicly attributable metrics, or standardised project dossiers would change the practice under observation and might impose an unwanted recording burden. A bounded reconstruction may instead rely on a participant-authorized description, a permitted sketch, a community-controlled account, or no retained record when recording itself would be inappropriate. Absence of a digital artifact is not evidence of absent creation, just as a repository entry cannot establish lived benefit. A community's decision against disclosure may be part of the legitimate continuation of its practice rather than an incomplete step toward open publication. The consequence for comparative design is that the unit of analysis is a feasible activity and its contextual relations, not a requirement to produce a portable digital object.

8.7 Independent Creation and Transitions of Institutional Scope

Creation, Commons mediation, and institutional adoption are three analytically distinct relations. A robotics student may conduct independent development using public materials with no hospital collaboration. A Commons may optionally introduce the student to someone interested in engineering or pedagogy. A university laboratory might decide independently to support a prototype. A hospital might later consider a demonstration in a nonclinical space or a specific operational application. These events should not be presented as an automatic progression toward hospital use, nor as stages over which the Commons exercises universal authority. They involve new participants, aims, resources, hazards, and institutional competences.

The transitions require attention to *scope*, not merely the maturity of the artifact. A synthetic training scenario may be shareable even when authentic patient stories are protected. A simulated robot may be useful for engineering teaching even if its movement near patients would require a separate risk assessment. An educational guide created with public materials may be discussed in a seminar but not inserted into an obligatory employee orientation without suitable institutional consideration. A community art practice may be valuable independently of any recognised therapeutic effect. The existence of a successful prototype, favourable peer feedback, or social interest does not itself establish clinical effectiveness or lawful implementation.

This distinction can be framed through a partial, context-sensitive continuation decision. For a proposed transition δ involving a trajectory representation $\hat{T}$ and a target activity a' in context c' , define only the research-level inquiry

$$\begin{aligned} \text{ReviewNeeded}(\delta, c') = & \text{ScopeChange}(\delta, c') \vee \text{RightsUnresolved}(\delta, c') \\ & \vee \text{SafetyReviewTriggered}(\delta, c'). \end{aligned} \quad (15)$$

Table 10: Hypothetical creative trajectories and limits on Commons mediation. Each case is a proposed comparison, not an observed result or a representation of hospital practice.

Trajectory	Possible continuation	Distinct boundary or countercase
Educational method	Revised teaching exercise and external classroom reuse	An educator may need no new Commons platform; teaching validity remains to be tested.
Robotics prototype	Code branches, physical revisions, and separate engineering demonstrations	Repository access does not authorise hospital testing or guarantee safe physical stewardship.
Volunteer practice	A locally developed explanation may be adopted as an informal routine	No duty to document extra work; a popular routine may be unsafe or inequitable.
Community art	Reinterpretation, performances, and consented documentation	A durable file does not capture an event's full social meaning or confer image rights.
Dormant project	A later contributor discovers a permitted old design	Original participation may have ceased; attribution, licences, and relevance can be unresolved.
Restricted material	A useful idea is inspired by a protected encounter	The original material may not be publishable; a safely generalised account may be possible.

The predicates in Equation (15) are investigator-supplied, potentially three-valued descriptions (supported, ruled out, or unresolved), to be assessed under the activity's actual institutional and legal conditions. The displayed disjunction is read conservatively: any supported trigger calls for review, and an unresolved trigger remains unresolved rather than becoming false. It is neither a software permission rule nor a legal certificate. A positive value flags the need for appropriate review, while a negative value does not alone confer authority to act. The formalism exists to keep the types of questions distinct; institutional decision makers, not the model, determine operative permissions within their jurisdictions.

There is also no general duty to seek such transitions. Some contributors wish their work to remain personal, pedagogical, artistic, or exploratory. Others may decline the reputational risks, delay, or managerial demands of an institutional application. A Commons that measures success primarily by hospital adoption would discount these legitimate outcomes and pressure participants to convert voluntary creation into service delivery. The capacity to present a work for evaluation can be valuable, but a decision to withhold or discontinue that process may also be justified.

8.8 Illustrative Creative Histories and Comparative Countercases

Table 10 compares hypothetical trajectories that differ in artifact form, collaboration, and limits on continuation. The cases are analytical constructions, not reports of observed participants, projects, or hospital operations. Their purpose is to expose questions that a universal software-repository model would not adequately distinguish.

The educational-method case tests whether concise documentation within an existing teaching unit already supports the relevant continuity. The robotics case probes the separation between digital lineage and material custody. The volunteer case challenges the assumption that repeated local use constitutes appropriate institutionalisation. The art case tests whether consent, context, and situated relationships can be represented without treating a performance as merely a digital object. The dormant-project case makes room for delayed recognition while recognising that the right to resume work must still be examined. The restricted-material case asks whether a useful but sensitive experience can inform a general research problem without disclosing protected details. None supports an inference that the value of a trajectory is proportional to the number of stored links.

Negative cases are equally informative. If a Commons system obliges a volunteer to log each small adaptation, it may increase surveillance and administrative work while adding little to the practice. If a student cannot share a prototype due to legitimate restrictions, an open repository is not an appropriate

workaround. If a merged software contribution becomes technically difficult to maintain, the celebrated integration may diminish the group's future capacity. If a physical prototype is retained indefinitely without an accountable custodian, the field may create a hidden stock of material risk. Such counterexamples matter for generative relational theory because they show that more visible creative activity or longer recorded histories do not necessarily imply greater autonomy, realised value, or reproductive capacity.

8.9 Trajectory Stewardship, Minimal Infrastructure, and Evaluation

A minimal design may need only appropriate references to existing artifacts, optional contact or collaboration channels, a way to state relevant access and licence conditions, and a route to correct misleading descriptions. For a software project already maintained through a public repository, duplicating issue, version, and branch histories would likely add little. For a university lab with a mature electronic notebook and asset register, a Commons might require only a narrowly scoped referral or dissemination interface. For a non-digital practice, a brief voluntary account or no persistent public account may be the most appropriate choice. The design unit should therefore be a situated work trajectory and its unmet continuity conditions, not an invariant list of platform components.

Where continuity infrastructure is justified, a reasonable comparison would examine not only the recovery of an artifact but also the time and skill needed to understand it; whether a later contributor has legitimate rights and resources to proceed; whether disputes about provenance and credit can be handled; whether physical objects remain safe; and whether the required maintenance is sustainable. Evaluation should also ask whose work has become more visible and whose remains unrecognised. The comparative baseline should include ordinary version control, existing institutional document repositories, laboratory notebooks, service procedures, and deliberately short-lived arrangements. An elaborate trajectory platform has no demonstrated advantage if a simple, appropriately maintained folder and steward provides equivalent capability with lower disclosure and maintenance costs.

Prospective evaluation could use matched hypothetical cases with identical substantive information presented through three forms: a narrative history, a concise local record, and a more heavily typed relational account. Evaluators could be asked to distinguish (i) what artifact or practice is described, (ii) which revision or contribution links are supported, (iii) which legal or ethical permissions are established, (iv) what remains uncertain, and (v) what conditions would be required for continuation in another context. Crucially, "not established by the available records" must be a correct and reportable answer. Metrics might include correctly detected uncertainties, inappropriate claims of authority, time to locate a usable version, overlooked maintenance obligations, participant burden, and potential disclosure exposure. These are proposed research outcomes, not empirical findings.

Creative trajectories are therefore neither a mandatory administrative object nor a sufficient measure of value. The proposed Commons field can, in some settings, preserve appropriate opportunities for independent continuation, collaborative revision, and later rediscovery. In other settings, existing facilities may already supply the necessary support, or the costs and risks of recording may outweigh its prospective benefit. Chapter 9 will consider how some voluntary continuations become recurrent practices and possible institutional routines. Chapters 10 and 11 will then ask under what conditions artifacts and practices may circulate toward external audiences and independent institutions without confusing transmission, recognition, approval, and realised benefit. Throughout those developments, the legitimacy of an activity remains dependent on the particular participants, materials, permissions, and institutional contexts involved.

9 Emergent Cooperation and Evolutionary Institutional Practices

This chapter examines how heterogeneous activities may become connected through cooperation, how some cooperative practices acquire historical continuity, and under what conditions a recurrent practice is considered for institutional recognition. Chapter 8 treated a creative trajectory as an open historical object whose participants and purposes may change. A trajectory may remain entirely independent; two

trajectories may become mutually relevant without their authors agreeing to collaborate; and a recurring collaboration may remain an informal arrangement without acquiring institutional authority. The analytical task here is to distinguish these outcomes, to specify the enabling and constraining role of the Commons field, and to consider how situated experimentation changes both the participating practices and the infrastructure available to later participants. Evolutionary economics, institutional analysis, and evolutionary governance theory provide established conceptual resources. The proposed generative relational contribution concerns the joint interpretation of historical collaboration, evidence, voluntary commitments, authority boundaries, and the changing accessibility of possible creative relations. The discussion uses hypothetical university-hospital settings and does not claim observed outcomes, authorised clinical activities, or a universal path of institutional development.

9.1 Coincident Activity, Acknowledged Collaboration, and Recurrent Practice

Co-presence is a weak indication of social proximity, not a sufficient definition of cooperation. Two students might use the same public educational dataset while independently designing unrelated teaching tools. Two volunteers might undertake similar tasks in different shifts because they share a published service instruction. Their activities may have a common institutional condition without any exchange between them. By contrast, an educator and a programmer might deliberately compare approaches to an accessibility problem, agree to share a synthetic test case, and revise their respective tools after discussion. A researcher might subsequently reuse a published tool without contacting its author. Each history involves a different kind of relation. If the Commons counts them all as collaborations, it conceals the distinction between common exposure, licensed reuse, communication, mutual adjustment, and an undertaking of joint work.

For analysis, *coincident activity* refers to activities with some shared context, object, or constraint but no sufficiently evidenced cooperative commitment or coordination. *Acknowledged collaboration* concerns situated interaction whose participants understand themselves to be acting together in some delimited manner. *Recurrent cooperative practice* describes a historically recognisable pattern of coordinated action, perhaps involving successor participants, that persists beyond an isolated encounter. *Institutionalised routine* denotes a pattern sustained by more determinate roles, expectations, and material or administrative supports. Finally, an *authorised institutional rule* is a rule issued, recognised, or applied through the competent procedure of the particular organisation and jurisdiction. These are different analytical predicates, not stages that each relationship must traverse. An authorised rule may be established before a new practice begins; a beneficial informal collaboration may never become a routine; and a harmful recurrent practice may deserve termination rather than recognition.

The generative relational distinction among three reality levels is important. At the level of ontological suspension, the inquiry need not resolve whether an institution, a habit, or a shared intention possesses an ultimate essence independent of its constituting relations. At the level of relational reality, repeated interaction, reliance, tacit skill, organisational position, and access to resources can produce consequential and historically stable arrangements. At the level of manifestation, interviews, repository records, attendance logs, written agreements, and policy documents disclose selected expressions of those arrangements. The observation that two named persons edited the same file is not itself evidence of their subjective understanding of a joint undertaking. Conversely, a cooperative routine may have existed even though it left no shared digital artifact. These limits matter when a proposed Commons attempts to learn from experience without claiming an exhaustive record of participants' activities.

An educational example clarifies the difference. A student notices that a public volunteer orientation guide is confusing and independently rewrites an exercise for personal study. Another researcher later comments on the revised exercise after being invited to do so. The initial creative work was independent, while the later exchange may constitute a narrow collaboration. If an educational team voluntarily tests a refined, non-sensitive example in a properly authorised training setting, a recurring procedure might begin to form. None of these transitions implies consent by other volunteers to undertake extra work, approval of a new hospital teaching policy, or a demonstrated improvement in learning outcomes. The

meaningful questions concern which interaction occurred, who agreed to it, what was changed, who carried the burden, and what evidence supports the account.

9.2 Relational Evidence and the Status of Cooperative Claims

A Commons that supports emergent practices may need to distinguish a proposed link between activities from a relationship supported by relevant evidence. The creative-trace record of Equation (13) provides a limited account of historical expressions and their uncertainty. For cooperative analysis, consider the following *claimed-relation signature*:

$$\text{CoopClaim}_{c,t}(r) = \langle a_r, b_r, k_r, q_r, e_r, u_r, \chi_r \rangle, \quad (16)$$

where c is the context of interpretation and t is the record time; a_r and b_r identify activities, participants, or collective agents as permitted by the inquiry; k_r is a declared *kind of claimed relation*, such as common resource use, exchange, mutual revision, agreed joint work, or recurrence; q_r identifies the activity, duration, and question to which the claim is restricted; e_r indicates admissible evidence; u_r records uncertainty, disputed interpretations, and relevant omissions; and χ_r describes the conditions on access, disclosure, and retention. The record is a statement about a possible relation, not an ontological creation of the relation and not a certification of its legitimacy. Missing or protected details need not be represented in a Commons-accessible record.

The distinction between evidence and right is particularly important. A volunteer's comment can indicate willingness to discuss one proposed improvement without agreeing to become an ongoing collaborator. A team photograph may show co-presence without proving that the depicted persons authorised public use of their image. An accepted code contribution may prove that a particular technical change entered a repository without demonstrating permission to deploy the resulting software in a hospital. Nor does observed repetition show that the participants regarded a procedure as voluntary. Coercion, unequal power, dependence on a recommendation, or lack of alternatives can make a stable pattern appear consensual when it is not. Analytically, a description such as $k_r = \text{"recurrent cooperation"}$ is therefore a *hypothesis to evaluate*, not a licence to assign additional duties.

It is also useful to keep the *time of an interaction*, the *time it was recorded*, and the *time when some competent authority made a decision* separate. Later testimony may alter a scholarly account of who contributed to an early design without changing the conditions under which a clinical trial, a performance, or physical-device access was permitted at the time. This separation is consistent with the partial historical reconstructions in Equation (14). The Commons can support corrigible accounts and dispute mechanisms, but it should not use its own data model to decree which contested interpretation is true. Where ordinary project notes already establish the necessary facts, elaborate individualised tracking may be unjustified.

9.3 Organisational Routines, Tacit Learning, and Cooperative Continuity

The significance of recurrent cooperation is not reducible to increased activity counts. In the evolutionary economics of Nelson and Winter (1982), routines help explain the patterned continuity and transformation of organisations. A routine may coordinate knowledge and skills without requiring every participant to reformulate every decision from first principles. However, a routine can also preserve inconvenient assumptions or reproduce a division of labour that participants have not freely chosen. Its persistence provides evidence of historical reproduction, not evidence that it is desirable. The present account uses this tradition to ask how cooperative practices become easier or harder to continue as field conditions change, rather than identifying a universally optimal routine for a hospital Commons.

Consider a recurring open study meeting in which educators, volunteers, and engineers discuss public or synthetic instructional problems. Initially it may be conducted by a few interested people using an ordinary shared document. Participants gradually establish a convention for circulating background materials, making interpretations explicit, and signalling whether a comment is merely illustrative or an

offer of further work. This convention can lower the cost of subsequent interaction. A new participant may learn the custom through involvement, not through a formal manual. Yet the custom may be fragile if one person quietly carries every administrative task, accessible formats are missing, or meetings are scheduled at times that systematically exclude shift workers. The apparent efficiency of a routine must be considered together with its distribution of time, recognition, dependence, and opportunity.

The field may support continuity through modest arrangements: a recurring public discussion, a permitted reference document, a clearly identified steward for shared material, optional attribution, or accessible information about how to join and leave. These arrangements do not have to be bundled into a new department. Existing university seminars, research repositories, volunteer offices, professional groups, and public services may already supply them. Infrastructure becomes significant when those arrangements are integrated into practice and their maintenance is actually supported. Star and Ruhleder (1996) emphasise that infrastructure is relational to working practices and cannot be inferred merely from the existence of a technical installation. Consequently, an unused coordination dashboard is not evidence of a working cooperative routine, just as a widely used informal custom does not by itself satisfy the requirements of a hospital policy.

Routines are also open to creative interpretation. A teaching exercise initially used in one voluntary workshop might be revised into a general educational method, developed independently elsewhere, or abandoned after a new participant questions its assumptions. The capacity to contest a routine without being penalised for nonparticipation can preserve exploration as existing conventions become familiar. Learning may thus involve not only becoming skilled in a shared procedure but also noticing circumstances in which the procedure is no longer appropriate. The Commons should preserve the possibility of authorised alternatives and reasoned criticism rather than treating consistency as an unconditional objective.

9.4 Customary Practice, Constitutive Norms, and Institutional Authority

Ostrom’s institutional analysis distinguishes the rules that structure action situations and emphasises the variety of arrangements through which participants address collective problems (Ostrom, 1990, 2005). This literature makes it possible to take locally developed practices seriously without equating emergence with legal validity. In the present university-hospital inquiry, an informal conversational practice, a working group’s internal convention, a public-facing Commons rule, and a binding operational direction issued by an authorised hospital official occupy distinct positions. Each may be influenced by participant experience, but they differ in who can formulate, challenge, approve, and enforce the relevant expectation. The paper proposes no common jurisdiction-independent procedure that automatically converts one into another.

We can express the distinction in a deliberately limited form. Let p be a described practice and d a proposed institutional decision. Let $\text{Obs}_{c,t}(p)$ denote an admissible observation about the practice, $\text{Rev}_{c,t}(d, p)$ the status of any required review of a specific proposed decision, and $\text{Comp}_{c,t}(d)$ an independently determined claim of competence to take it. The analytical non-entailment is:

$$\text{Obs}_{c,t}(p) \not\Rightarrow (\text{Rev}_{c,t}(d, p) = \text{approved}) \wedge \text{Comp}_{c,t}(d). \quad (17)$$

Equation (17) states that observed practice cannot, by itself, establish a review decision or an authority claim. It deliberately leaves the content of relevant review and competence to the actual institution, decision type, and governing norms. Nor does a review record prove that an action has been carried out or that its consequences were beneficial. The expression is an inferential boundary for scholarship, not a software rule that confers or withholds clinical permission.

An instructive counterexample concerns a repeated workaround. Imagine that a group routinely carries equipment between rooms because a public-facing process is cumbersome. Continued repetition might make the practice locally familiar and reduce immediate coordination costs. Yet it might also indicate insufficient staffing, unsuitable design, or an unrecognised safety concern. Treating its prevalence as evidence that the workaround ought to become official policy would suppress the most important

inquiry: why it arose and whose interests, risks, and capacities it affects. By contrast, a group might repeatedly adopt an accessible document format through voluntary discussion, and the institution could later consider incorporating the practice into an appropriate information standard. The possibility of formalisation depends on the setting, evidence, affected persons, and applicable authority; frequency is neither a sufficient nor a necessary condition.

Constitutive norms and evolving norms should therefore not be treated as interchangeable. Rights, voluntary participation, appropriate protection of persons, permissible handling of information, and institutional responsibility define boundaries for activities undertaken in a given setting. Some of these boundaries are legally required; others may be defensible principles adopted within an organisation. The Commons may develop internal conventions concerning documentation, moderation, credit, and collaborative decision-making, but its members cannot by internal consensus repeal external clinical, employment, data-protection, or research-ethics requirements. Equally, an external rule may admit permitted local discretion or revision through a competent process. The distinction is between the grounds and procedures of authority, not between a rigid world of rules and an unrestricted world of emergence.

9.5 Variation, Selective Retention, and the Co-Evolution of Field Conditions

Emergent cooperation changes the conditions in which later cooperation is possible. A group that maintains a small catalogue of openly shareable teaching materials may enable an artist to develop an accessible workshop; that workshop may bring forward a problem of multilingual explanation, which in turn attracts an education researcher or designer. Alternatively, the same catalogue may become abandoned because its maintenance is costly and ordinary public repositories already meet users' needs. These outcomes should be analysed as historical possibilities with different conditions, not as predictable steps in an upward sequence. The initial configuration described in Chapter 5 is designed to make some diverse and lawful practices feasible without fixing their eventual combinations.

March (1991) analyses the allocation of organisational attention between exploring uncertain possibilities and exploiting familiar capabilities. This tension is particularly relevant when resource decisions rely on visible early successes. A public code contribution may be easy to enumerate, whereas improvement in an informal support practice may leave no comparable digital trace. If resources are allocated only to trajectories that produce standardised metrics, the field may increase the apparent superiority of the work easiest to record. Such effects are not corrected merely by presenting a neutral-looking proposal interface. Selection depends on what has become legible, whom the field can reach, which reviewers possess relevant expertise, and whose maintenance work is funded.

Evolutionary Governance Theory analyses the co-development of actors, institutions, expertise, and dependencies within historically changing governance arrangements (van Assche et al., 2014). The present analysis draws on this established emphasis and asks what additional discrimination is obtained by treating the Commons as an enabling field for heterogeneous creative trajectories. A successful cross-disciplinary collaboration might alter the infrastructure required by subsequent participants. The invention of a new physical artifact could produce a need for safely bounded fabrication resources; an artistic practice might expose the absence of appropriate community participation channels; a defunct project might leave reusable publicly licensed documentation. In each case, participants alter the field while the field alters the accessible space of their practice. Neither field evolution nor cooperation is necessarily beneficial, linear, or independently chosen by every affected person.

One useful distinction is between the *retention of a creative output*, the *retention of a recurrent practice*, and the *retention of an institutional interface*. A robot design file may be archived even when no developer continues the project. A jointly developed teaching practice may remain useful after the originating document is lost. An access arrangement might persist even if the original users leave, but continued access is justified only while its purpose, rights, and resources remain appropriate. These objects have different carriers, expiry conditions, and repair obligations. A Commons whose success metric combines them into a single measure of "surviving projects" loses information needed to govern the field responsibly.

Co-evolution also involves contraction. An unnecessary coordination meeting can end; a repository may be made read-only when maintenance cannot be supported; an experimental practice may be retired after negative feedback. Ending one support arrangement can release capacity for another, but it can also eliminate a rare opportunity for an underrepresented group. Each choice calls for comparison of legitimate alternatives, not a general presumption that organisational expansion is progress. A field may support creative independence best when it refrains from institutionalising an already adequate, low-risk activity.

9.6 Trust, Unequal Positions, and the Distribution of Cooperative Labour

Trust can facilitate cooperation, but neither trust nor repeated participation should be assumed to precede every successful interaction. Some participants might first collaborate through a narrowly scoped, verifiable arrangement and only later develop confidence in one another's reliability. Others may prefer explicit procedural protection precisely because personal trust is absent. Trust is also multidimensional: one may trust an engineer's technical competence while withholding consent to access personal information, or value a volunteer's experience without granting authority to represent an entire patient community. The field should avoid translating trust expressed in one relationship into unconditional trust in another.

Asymmetry affects both the possibility and the meaning of collaboration. A student asked by an academic supervisor to maintain an optional shared repository may formally be free to decline but may believe that a refusal will damage evaluation or future opportunities. A hospital employee may be encouraged to supervise community projects while receiving no protected time. A volunteer may feel expected to transform observed service problems into a research proposal even though this was never part of the agreed role. A patient or family member might have knowledge that professionals lack but face high emotional costs when publicly disagreeing. These relations cannot be reduced to the number of voluntary sign-ups. The relevant inquiry considers how invitations were made, whether alternatives existed, whether participants could renegotiate the activity, and whether declining involved a credible risk of disadvantage.

Maintenance is a consequential component of cooperative emergence. Someone prepares accessible materials, moderates discussions, tests whether links remain usable, manages physical objects, preserves records, responds to rights questions, and explains why a proposal cannot be accepted. Much of this work may become invisible if the institution treats collaboration as an output-generating activity rather than a continuing arrangement with costs. Star and Strauss (1999) analyse how visibility and invisibility shape work, while Star and Ruhleder (1996) examine the organisational challenges that accompany infrastructural adoption. The present design extends these concerns into a comparative obligation: before celebrating the spontaneous growth of a routine, ask who sustains the routine and what other work they must forgo.

The appropriate answer need not be a general payment rule or a universal requirement of reciprocity. Some contributors freely choose unpaid creative participation; some resources are established for public benefit without requiring users to return value; and some technical services require funded professional maintenance. Different arrangements can be reasonable under different commitments and purposes. The normative issue is whether the institution obscures or extracts necessary work, whether the conditions of participation are intelligible and revisable, and whether a seemingly successful cooperative form undermines the future capabilities of the people whose labour makes it possible. Chapter 4 already distinguishes value claims from realised benefits; Chapter 12 will examine stewardship and generative reproduction in more detail.

9.7 Plural Cooperation, Conflict, and Path-Dependent Exclusion

There need not be a single cooperative community within one proposed Commons. Different groups may share an information resource while maintaining incompatible methods or priorities. A software team

might seek rapid prototyping, whereas an education group prefers careful assessment of learner comprehension; an artistic activity may require conditions for expression that cannot be evaluated through engineering benchmarks; and a clinical unit may refuse experimental changes in its operational environment. These differences are not necessarily defects to eliminate. Their relations may comprise weak information exchange, episodic collaboration, practical non-interference, negotiated common infrastructure, or deliberate separation. Each configuration has distinct benefits and risks.

Conflict can reveal an important misfit between the founding field and its participants. Suppose that a robot-design community receives extensive visibility because its artifacts can be demonstrated publicly, while a proposed accessibility practice attracts less attention because its effects are situated and harder to quantify. The resulting imbalance may be caused partly by the platform's representational categories rather than by an agreed judgment of comparative public value. Conversely, obliging every project to document its benefits in a single shared format can create excessive work and suppress professional distinctions. The field may need plural reporting forms and a contestable resource-allocation process, but these, too, impose maintenance and coordination burdens. Appropriate pluralism therefore requires attention to scale and actual need.

Historical choices can reinforce their own apparent success. If a founding group supplies code-hosting tools and appoints only engineering stewards, future proposals expressed as software issues will be easier to recognise. They may generate more visible collaborations, which appear to justify additional engineering investment. An educational or community practice then faces an apparently neutral but substantively unequal environment. The underlying dynamic is a plausible path-dependence hypothesis, not an inference that every technically oriented Commons is exclusionary. Comparisons should examine who could participate, what kinds of work were visible, how decisions were made, and whether a different small-scale infrastructure would have enabled activities that the initial field missed.

Nor is consensus always the right outcome. A contributor may request that a disputed attribution be corrected without asking to rejoin the relevant project. A group may decline to share a culturally situated artistic practice beyond its members. A clinician may reject an otherwise interesting prototype for operational use, while the developers continue a legitimate simulation project elsewhere. A participant may leave following disagreement while retaining independently held rights and relationships permitted by applicable arrangements. The Commons can support respectful coexistence or division, not merely convergence. Exclusion that results from legal protection or legitimate risk management should be distinguished from exclusion produced by avoidable interface design, unequal voice, or social pressure.

9.8 Illustrative Patterns of Cooperative Emergence and Institutional Alternatives

Table 11 compares hypothetical practices that vary in their initial relations, opportunities for development, and potential constraints. The cases are analytic probes rather than observations of any university hospital or volunteer group. Their value is to identify when a recurrent activity could support a modest cooperative arrangement and when a Commons layer would introduce ambiguity or cost. They also specify outcomes that a designer should be able to recognise as reasonable non-cooperation rather than failed recruitment.

The cases are not simply further versions of the creative histories described in Chapter 8. The comparison here asks what, if anything, turns an encountered practice into a *recurring coordination arrangement*: who knowingly accepts a cooperative expectation, how its continuation depends on resources, who may revise an operational rule, and when normalisation conceals an unequal burden. Repeated use of a teaching exercise may show local convenience without creating an agreed interdepartmental routine; recurring code contributions may create a genuine maintenance relation only when specific work is accepted; repeated voluntary workarounds may signal the need to correct an institutional problem rather than ratify an emergent custom. A negative institutionalisation decision can therefore preserve creative autonomy and sound existing governance at once.

The corresponding comparison must include plausible non-Commons baselines. One version of an educational collaboration might operate through a conventional university seminar and public teaching repository; another might use a proposed Commons interface. The analyst should compare access, clarity

Table 11: Hypothetical cooperative configurations and discriminating institutional boundaries. These scenarios are not empirical results, authorisations, or forecasts.

Initial practice	Possible relational development	Boundary or simpler alternative
Open teaching materials	Two educators voluntarily test, compare, and revise synthetic teaching exercises; a reusable method may develop	Existing course team or public repository may suffice; no implied access to learners or staff files
Student robotics prototype	Optional collaboration divides simulation, mechanical design, and documentation; different branches may persist	Fabrication and any hospital deployment require specific resources and competent approvals; an existing lab may be adequate
Volunteer service observation	Repeated optional feedback helps clarify a public-facing explanation or training example	Existing service duties do not create extra Commons labour; sensitive matters follow their competent channels
Community art workshop	Different groups share methods or organise a lawful collaborative performance with negotiated attribution	Absence of a durable artifact does not mean absence of value; permissions and venue capacity remain separate
Open software maintenance	Repeated contributions lead to shared review conventions and steward roles	Stable contributions can coexist with maintainer overload; a third-party platform may already serve the need
Longstanding operational workaround	A repeated method becomes visible as a candidate for institutional review	Frequency cannot establish safety or legitimacy; the workaround may indicate a condition requiring correction

of consent, workload, quality of independent feedback, and ability to preserve revisions with equivalent information and resources. If the conventional arrangement achieves the relevant purpose at lower institutional cost, a positive Commons design conclusion is unwarranted. A similar comparison should be made between robotics development in a suitable pre-existing laboratory and development routed through a new field service. The point of the Commons is not to claim jurisdiction over creative activity already adequately supported elsewhere.

9.9 Evaluation of Cooperative Emergence and Institutional Revision

An evaluation of emergent cooperation should separate descriptive, explanatory, and normative questions. Descriptively, what recurrent patterns can actually be identified, and how incomplete are their records? Explanatorily, did a proposed Commons support make a material difference to the feasibility, autonomy, or continuation of the practice when compared with existing arrangements? Normatively, were the relevant participation terms, use permissions, protections, and institutional decisions appropriate for that activity? A finding under one heading does not resolve another. A documented increase in collaboration frequency might coincide with an increase in unrecognised supervisory labour; a participant might report satisfaction while another affected person lacks an effective means to object.

A prospective empirical protocol could compare ordinary records, an existing institutional workflow, and a limited Commons interface using the same synthetic or lawfully available cases. Researchers could ask evaluators to classify whether a case documents mere co-presence, some voluntary collaboration, a recurrent routine, a claimed formal authorisation, or insufficient evidence to decide. They could then ask separately what additional institutional review, if any, is required for a contemplated activity. Outcomes would include classification errors, inappropriate permissions inferred, missed dissent, additional maintenance time, overlooked professional needs, and unwarranted conclusions about value. An honest “insufficient information” answer may be more correct than a confidently assigned collaboration label. Because such tests would initially be constructed, their results could support analytical discrimination but would not by themselves prove effects on actual hospital participants.

A further longitudinal inquiry, possible only with appropriate research permissions and safeguards, could examine whether cooperation remains voluntary, whether previously unrecognised needs gain appropriate visibility, which routines survive staff or student turnover, and whether the field itself changes

in response to critical feedback. Competing explanations include pre-existing professional incentives, established university infrastructure, selection of unusually motivated participants, supervisor support, external funding, and ordinary organisational learning. A Commons-specific mechanism would require evidence beyond the fact that collaboration occurred after a platform was introduced. Where suitable observational or comparative evidence is unavailable, the paper should retain its claim as a design hypothesis.

The chapter's analytic result is accordingly limited but constructive. A proposed Commons can provide conditions under which independent activities might encounter one another, become cooperatively revised, and sometimes develop recurrent practices. The emergence of these practices does not itself settle their authority, desirability, or need for further institutionalisation. The field may appropriately preserve multiple forms of continuation, refusal, contestation, adaptation, and closure. Chapter 10 will examine how creative work and cooperative practices enter dissemination paths extending beyond their originating environment; Chapter 11 will separately consider institutional recognition and resource support. This division preserves the distinction between internal cooperative history and external value circulation while allowing their eventual relations to be studied.

10 Value Dissemination, Circulation, and External Institutional Interfaces

This chapter examines the relations through which a creative activity, artifact, or practice may become accessible to subjects beyond its originating setting, acquire new interpretations, and sometimes participate in further value creation. Chapter 8 developed an account of creative trajectories without equating them with projects or digital repositories; Chapter 9 considered the emergence of cooperation and recurring practices. The analytical object now is the *circulation path*: a situated, potentially incomplete connection among a creation, a mode of disclosure, an audience, an interpretive or practical response, and possible subsequent uses. The chapter asks what minimal infrastructure could make such connections discoverable and revisable without requiring the Commons to become a universal publication service, evaluator, funding body, or organisation controlling every subsequent use. Existing work on boundary objects, cross-boundary knowledge, public-service value, knowledge commons, and interoperable descriptions supplies essential prior theory. The proposed generative relational contribution is to examine how heterogeneous value claims and creative capacities can be conditionally connected across institutional boundaries while preserving uncertain evidence, rights, authority, historical change, and the possibility of non-return. All examples are analytical scenarios, not reports of an operative hospital Commons or an authorised institutional partnership.

10.1 Circulation Paths, Disseminated Objects, and Situated Uses

The word *dissemination* often evokes publishing information to a wider audience. That meaning describes one important operation but does not exhaust circulation. A written account of a volunteer's successful way of explaining a public-facing procedure can be shared, and the practice itself may later be learned through an invited demonstration. A student can distribute robot-control source code, present a schematic, lend a physical prototype for authorised inspection, or explain an unsuccessful experiment. A community artist may permit photographs of a work yet prefer that the work itself remain in a particular place. An educational researcher may offer a reusable exercise, a teaching principle, or training for educators, each of which enables a different form of continuation. A service improvement might be communicated through conversation and enacted through an existing competent department rather than deposited as an independent object. A Commons focused exclusively on downloadable artifacts or bibliographic records would miss these differences.

For the present inquiry, a *circulating expression* is an expression, object, practice description, demonstrable activity, or appropriately disclosed account that can enter some new relationship of interpretation

or use. This description does not presume that a person must disclose a work, nor that an intangible practice can always be separated from its performers, social meaning, or local conditions. A *circulation path* is the historically situated relation through which a particular expression becomes potentially available to a particular audience through a specified interface. A path may be mediated by a public catalogue, a professional meeting, a university office, a community partnership, a workshop, a referral, an existing software repository, or an ordinary interpersonal exchange. The existence of such a path is distinct from the occurrence of reception or uptake.

Several categories of change deserve separation. *Exposure* concerns the opportunity to encounter an expression. *Discovery* denotes that a subject actually becomes aware of its existence. *Comprehension or translation* concerns the relation between the expression and the recipient's interpretive resources. *Evaluation* is a judgment, competent or otherwise, concerning some value claim. *Uptake* is a particular subsequent use, adaptation, discussion, teaching, or application. *Effects* concern what occurs because of or in association with the uptake, subject to independent inquiry about attribution. *Generative reproduction* concerns any subsequent change in capabilities or conditions for further activity. They can occur in varying sequences; feedback may precede public dissemination, and one person may find value in an abandoned prototype which its creator never described as successful. Yet their analytical predicates should not be merged.

The university hospital is one possible site from which circulation begins or toward which it is directed, not a necessary owner of all circulating work. A student's independently developed teaching tool may move among schools, civic groups, and educational researchers without entering a hospital's operations. A robot prototype originating in a voluntary discussion may find an engineering audience while remaining unsuitable for clinical surroundings. A service department may accept one modest improvement while explicitly declining to redistribute its internal working documents. Where an existing university repository or local professional exchange already supports the relevant path, creating a Commons-branded parallel channel has no presumptive benefit. The design question is whether some justified connection, currently difficult to establish, can become practically available without imposing inappropriate burdens or claims of institutional control.

10.2 Relational Value, Recognition, and the Three Levels of Reality

A circulating object does not carry a fixed amount of value unchanged among recipients. Section 4.3 established the scope of value claims; the additional question here is what happens when a representation travels beyond its original audience. At the ontological level, circulation leaves the ultimate status of value unresolved. At the relational level, a transported object or practice may become causally and generatively significant in a new historical setting. At the manifestation level, downloads, citations, recommendations, conversations, and interviews provide partial evidence of that encounter. The existence of a circulation trace therefore supports neither an invariant valuation nor a claim that recipients recognised or used the same object in the same way.

The problem is especially visible when different disciplines encounter the same creation. Consider a student-built transport robot with a publicly shareable simulated navigation module. An engineer may regard the module as an interesting control implementation; an educator may use the project to teach design; a hospital safety officer may identify unacceptable deployment risks; a community maker group may find the chassis useful for a different task. These assessments are neither automatically equivalent nor necessarily contradictory: their evaluative objects, intended uses, available evidence, exposed populations, and standards differ. A negative assessment for use in a clinical corridor does not cancel possible educational value; an encouraging engineering review does not establish that such use is safe. Section 4.3 already treats value claims as scoped and revisable. The circulation interface must preserve those scopes when introducing a work to additional recipients.

The connection to established scholarship should be explicit. Osborne et al. (2022) develop public-service value analysis across service ecosystems and recognise the possibility of value loss. The argument here is not the discovery that recipients matter in value creation; rather, it asks how a proposed Commons

might preserve the differences among distributed recognitions and subsequent uses when paths leave the original service ecosystem. The boundary-object account of Star and Griesemer (1989) explains how heterogeneous participants can coordinate around partially shared objects without complete agreement. Carlile (2004) distinguishes transfer, translation, and transformation across boundaries with different forms of knowledge difference and dependence. These are substantive antecedents to the present analysis, not terms newly invented by generative relational theory. The additional inquiry concerns their joint interaction with incomplete historical traces, permission boundaries, uncertain value claims, and enabling conditions for continued independent creation.

A circulation path can also alter the object whose value is under consideration. A translated educational guide may gain a new example, a revised prototype may be rebuilt with different materials, and an informal community practice may be criticised and reinterpreted before it is discussed elsewhere. Circulation thus changes more than the count of audiences. It may alter the trajectory, its relevant relationships, and even what participants understand their earlier work to have been. A later recognition event should not be retroactively presented as proof that every earlier observer already possessed the same knowledge or that the original creator intended the later use. The time of creation, disclosure, reception, judgment, permitted use, and observed effect may all differ. Preserving those distinctions supports both credit and epistemic restraint.

10.3 Discovery, Translation, and Competent Evaluation

A value-circulation interface must distinguish access to an expression from the conditions under which its significance can be recognised. A repository can make a robot drawing downloadable while omitting the intended scale, the limitations of simulation, or the skills required to interpret the design. A public account of volunteer practice might be intelligible to experienced workers but opaque to an educational researcher interested in the underlying learning process. An art workshop's social significance may be lost when its record is reduced to a captioned image. The physical availability of a representation does not itself supply the context needed for a recipient to understand it responsibly.

One possible Commons service is *situated value articulation*: helping a willing creator describe what an expression is, where it arose, what question it addresses, which parts may lawfully be shared, and what remains uncertain. Another is *audience-sensitive translation*: making the same expression intelligible for different potential recipients without claiming that one description fully captures its meaning. A teaching researcher might provide a pedagogical account alongside source materials; an engineering group might link to technical constraints; a community organisation might need a non-specialist summary or an accessible demonstration. These activities require judgment and sometimes labour. An interface that solicits them should not assume that contributors, volunteers, or clinical workers owe unlimited translation work to an undefined public.

Competent evaluation is a separate relation. Academic reviewers may assess methodological validity; engineers may consider test adequacy; artists and community members may articulate interpretations appropriate to their work; hospital staff with relevant authority may evaluate compatibility with an operational need. Each has a restricted domain of competence. Commons facilitators can sometimes direct a question to a willing evaluator, but they should not transform an informal comment into an official endorsement. Conversely, community members' experiential knowledge may raise important questions about formal expert assessments without displacing legal or clinical responsibilities. A credible design must permit several claims of value, disagreement, non-assessment, and the refusal of an invitation to review.

The proposed circulation field can thus supply *intelligibility opportunities* rather than universally valid value labels. A concise public summary may increase the chance of a meaningful encounter; domain-specific supporting evidence may permit closer inspection; a trusted connection may allow a dialogue to occur. None of these mechanisms guarantees an affirmative evaluation. Nor do platform visits, downloads, and referrals measure the quality of subsequent human understanding. A test of the Commons's value must ask whether additional recipients were able to make more appropriately bounded

decisions, including correct decisions that an expression did not suit their context, rather than merely count publicity events.

10.4 Partial Route Records, Scoped Interfaces, and Inferential Limits

If a Commons supports multiple dissemination routes, a small amount of structured information may help participants identify an appropriate audience without converting the Commons into a universal gatekeeper. Chapter 8 already distinguished a creative trace from the historical relation it purports to describe, while Section 7.4 developed qualified routes for different kinds of problem expression. A circulation route has a related but distinct function: it concerns the possibility that an appropriately disclosed expression can reach a recipient who may independently decide to interpret, evaluate, or use it. It does not necessarily begin with an explicit problem submission and need not lead to a formal decision.

For an originating expression e , a candidate audience or receiving interface u , and an interpretive context c at time t , we propose the following limited *route record*:

$$\text{RouteClaim}_{c,t}(e, u) = \langle k, \sigma, \alpha, \iota, \epsilon, \tau, \mu \rangle. \quad (18)$$

Here k denotes the kind of expression or practice and its relevant manifestation, such as a freely shareable file, an invitation to view a physical object, or a description of a community activity. The term σ specifies the intended disclosure scope and the creator's communicative preferences; α represents claims and evidence concerning the permissions required for the proposed transmission, without itself determining legal validity; ι describes what is known about the receiving interface, its stated purpose, and the kind of decision it is competent to make; ϵ holds provenance, relevance, and evidentiary qualifications; τ distinguishes event dates, record dates, and any stated time limits; and μ identifies who, if anyone, accepts the limited labour of maintaining the route information. Each component may be partial or disputed. A route record is not a record of actual transmission, an offer of resources, or an institutional commitment.

We distinguish *proposed*, *eligible for further examination*, *enacted*, and *closed or unavailable* route states. The middle state is deliberately epistemic and scoped: a facilitator may have sufficient information to consider a connection, while the receiving party remains entirely free to decline. Where critical information about rights, identity, or safety is missing, the correct status can be *unresolved*; where disclosure is not allowed, the proposed public route may be excluded. These statuses should not be collapsed into one Boolean “approved” field. For a specified disclosure act d , an expression e , receiving interface u , and context (c, t) , the following *screening relation* is partial:

$$\text{Screen}_{c,t}(e, u, d) \in \{\text{eligible}, \text{excluded}, \text{unresolved}\}. \quad (19)$$

The term *eligible* is a design-level conclusion that the record contains no identified obstacle to *considering* the specified connection under the screening rules. It is neither a competent legal determination nor the receiving organisation's approval. Eligibility may require a separate, explicit decision by a rights holder or institution before any actual disclosure. Screening criteria and their evidentiary status must be stated for the concrete jurisdiction and purpose rather than borrowed uncritically from a general platform taxonomy.

The resulting non-entailments are essential:

$$\begin{aligned} \text{Published}(e) &\not\Rightarrow \text{Discovered}_u(e), \\ \text{Discovered}_u(e) &\not\Rightarrow \text{Validated}_{u,c}(e), \\ \text{Recognised}_{u,c}(e) &\not\Rightarrow \text{AuthorisedUse}_{u,c}(e), \\ \text{Used}_{u,c}(e) &\not\Rightarrow \text{BeneficialEffect}_{u,c}(e). \end{aligned} \quad (20)$$

The predicates in Equation (20) describe distinct claims under the same indicated expression, audience, and use context; the first predicate concerns a dissemination event, the second an evidenced reception, the third a specified evaluation, and the remaining predicates permission, action, and outcome. These are general warnings against invalid inference, not assertions that the indicated transitions are impossible. A

publication could in fact be discovered and useful, but each link requires its own supporting conditions. Similarly, a possible path in Equation (18) does not prove that it was traversed. An institution's favourable assessment is not automatically a claim of authorisation to act in another institution.

Equation (19) concerns only the candidate disclosure act, not permission to undertake a later practical intervention. If a later expression cites, translates, or modifies an earlier one, the records can be *linked* as evidence of potentially related trajectories. Such a link must preserve the kinds, scopes, and uncertain status of the underlying claims. Two compatible metadata entries do not themselves establish lawful reuse, intentional influence, or realised positive value. Nor does a time-ordered list of links necessarily constitute a causal chain. This restriction is important when a proposed Commons hopes to learn from patterns of circulation without mistaking a richly connected graph for an explanatory proof of social impact.

A dissemination claim must also retain the identity of the object or practice actually transmitted. A robot design file and a physical robot, or a community invitation and its subsequent performance, can share a creative history without constituting the same distribution event or legal use. The receiving institution's decision is a further independent record, developed in Section 11.4. A federated index can refer to these records only where the intended disclosure and cross-context association are legitimate. Thus a pathway can be *discoverable* but inappropriate to traverse; a receiver may inspect an expression without taking any position on its value. This preserves dissemination as an option for creators rather than converting publication into compulsory exposure or institutional endorsement.

10.5 Federated Circulation Infrastructure and Practical Sufficiency

The infrastructure required to support external circulation need not be a single digital platform. In many settings the lighter option is to maintain a small, optional directory of expressions, descriptions, contact or referral possibilities, and links to materials already held elsewhere. A code repository may remain under the author's chosen licence and stewardship; a research record may remain in an existing university archive; a community practice may be described through an authorised public account; a physical prototype may be represented by limited documentation rather than transported or placed online. The Commons would maintain only justified connections among these distinct locations, subject to the participants' choices and the actual costs of keeping those connections intelligible.

Existing interoperability standards show why separate stores can sometimes cooperate. The W3C's Data Catalog Vocabulary, DCAT version 3, supports metadata descriptions and federated discovery for datasets and data services, including version-related descriptions (World Wide Web Consortium, 2024a). It does not purport to represent every physical, artistic, or interpersonal contribution in the same way, and a DCAT entry grants no access or re-use right. The W3C PROV ontology provides a vocabulary for expressing selected provenance relations among entities, activities, and agents (World Wide Web Consortium, 2013). Such relations may be valuable for explaining technical derivation while remaining silent on whether a contested attribution is true, whether a consent has been obtained, or whether a hospital may use the material. These standards provide examples of *interoperable representations*, not normative blueprints for a Commons. The design should adapt existing standards to a justified task rather than invent a proprietary universal ontology to force all creative practices into a machine-readable form.

A minimal field infrastructure might therefore consist of four *capabilities* rather than four organisational departments: optional expression of a shareable creation; discovery of relevant external audiences or existing channels; a bounded interface for contact, translation, or referral; and, where wanted and lawful, a link allowing later feedback or versions to be traced. These capabilities can be distributed among the creator, an ordinary website, an existing university unit, and a willing outside organisation. In some cases a publicly shareable document with clear contact conditions already suffices. A central Commons page might be unnecessary, and a sophisticated routing service may create false expectations of review or institutional sponsorship.

A comparison of digital and non-digital outputs makes the limits clearer. A software project may benefit from source-code hosting, issue discussion, and independent branches. A practical teaching

method may require an accompanying explanation and professional dialogue rather than a version graph. A manufactured robot may require safe storage, an inventory, permissions for physical inspection, and a trained person who can explain its condition. A community exhibition may require agreements on reproduction, attribution, place, and the sensitivities of those represented. A volunteer's service experience may be valuable precisely because it can be discussed confidentially through an existing feedback channel rather than openly indexed. Therefore, *federation* should mean interoperable relations among heterogeneous forms of mediation, not an obligation to digitise or expose every relevant object.

Several seemingly technical features have ethical consequences. A project title or contributor name can reveal a protected affiliation; timestamps and location details can expose routines or identify a person indirectly. A resource directory might disclose that a sensitive project exists even where its underlying files are access-controlled. Automated aggregation could unintentionally republish material outside the scope of the original disclosure, create durable reputational associations, or attribute a work to someone who did not agree to public identification. Rights, privacy, accessibility, withdrawal policies, and the costs of correcting errors must therefore shape *metadata publication itself*, not merely access to attached documents. No shared index is required when its existence would create a disproportionate disclosure risk.

The threshold for additional infrastructure should be comparative and prospective. Before building a search portal, an organisation could ask whether discoverability is actually deficient, who has identified the deficiency, whether an existing professional or public channel already addresses it, which rights are implicated, and who will maintain records when contributors leave. It should also ask whether simple signposting, occasional interprofessional meetings, or use of an existing archive meets the need at lower cost. The burden of explanation rests on the proposed additional infrastructure, not on the legitimacy of independent creative activity conducted without it.

10.6 Plural Audiences, External Competence, and Institutional Boundaries

A university-hospital field is relationally embedded in many environments without possessing authority over them. Potential recipients can include educational and engineering communities, professional associations, civic groups, public services, research organisations, businesses, arts networks, charitable organisations, funders, or other Commons. The relevant connection depends on the creation and intended interaction. Neither a ministry nor a university nor a hospital department forms a mandatory higher tier in a universal sequence of evaluation. The fact that a student can publish a prototype is not a guarantee that a graduate school will recognise it for academic credit, that a funder will accept an application, or that a hospital will consider a trial. Those bodies operate under their own eligibility rules, priorities, evaluation methods, rights arrangements, and responsibilities.

The distinction between *relevance* and *competence* deserves attention. An engineering researcher may possess expertise to comment on a robot's motion-planning algorithm while lacking authority to grant use of a hospital corridor. A public-service organisation may recognise a community need but have no right to redistribute confidential institutional materials. A university department may provide a forum for scholarly criticism but lack responsibility for the physical safety of a privately fabricated object. A hospital may be able to consider a service problem yet have no obligation to sponsor an unrelated artistic project. The Commons can help identify the correct kind of question for each recipient while preserving its independence and right of refusal. Chapter 11 will study resource-support and recognition pathways in greater institutional detail; the present chapter addresses the conditions for a communication or referral to be considered legitimate in the first place.

Multiple audiences may judge the same expression differently. A volunteer's revised orientation exercise may be recognised as an accessible explanation by a community group, criticised for insufficient evidence by educational researchers, and judged administratively unsuitable by a particular hospital. These responses are scoped to different purposes and may prompt divergent branches of the original creative trajectory. A Commons should not require a universal score to select one as the sole valid assessment. Nor should a highly influential recipient's refusal erase the possibility of other legitimate uses.

At the same time, multiple interpretations cannot override rights or professionally required safety controls; disagreement about aesthetic or pedagogical value is not permission to expose participants to an unauthorised intervention.

Cross-border paths add another complication. An educational resource lawfully shared for one purpose may encounter different copyright arrangements, accessibility requirements, personal-data rules, language conventions, or professional expectations elsewhere. Legal questions require identification of the relevant jurisdictions and actual rights. The internationally framed Commons approach cannot substitute a global internal licence for the permissions and institutional decisions that govern each transfer. Creative Commons' BY 4.0 legal code, for example, specifies a particular set of licensed rights and expressly does not license patent and trademark rights or confer institutional endorsement (Creative Commons, 2013). The relevance of that example is the need to distinguish *a concrete licence for specified material* from the general aspiration to disseminate value. WIPO's comparative copyright guidance similarly distinguishes protectable expressions from ideas, procedures, and methods as such, while recognising that ownership and exceptions differ across national laws (World Intellectual Property Organization, 2026a). Publishing code or design drawings does not by itself resolve rights in every component of a robot, rights in a dataset or a person's image, or competence to operate the finished object in a hospital. A federated pointer to material must not be treated as a clearance certificate for its further reuse. Some contributions should remain private, some can be shared in restricted circles, and some may be fully open; none is inherently less creative because it cannot be published publicly.

Finally, a route should not be evaluated only by whether it reaches a prestigious recipient. A locally maintained community organisation might be the most knowledgeable user of a practical service improvement. A small learning group may generate more meaningful educational feedback than a large anonymous audience. Conversely, routing resources solely toward the most connected groups may strengthen existing reputational hierarchies while leaving minoritised, geographically distant, or less digitally connected contributors unheard. Supporting multiple legitimate pathways and accessible modes of expression is a response to this risk, although the mere existence of options does not prove equitable access or fair recognition.

The unit of circulation can be a *reproducible method* or an *opportunity for situated encounter*, not only a transferable file. A community artwork may circulate through a licensed exhibition, invitation, workshop, or spoken interpretation, while a volunteer's practice-based improvement may be conveyed privately to a willing professional rather than published with identifiable participants. In these settings, successful routing requires an audience capable of receiving the particular expression, a form of participation the originator accepts, and resources for translation or access where needed. Repurposing such expressions as publicly searchable datasets could introduce risks and alter their meaning. Accordingly, the proposed circulation interface admits lawful non-digital, time-limited, restricted, and non-public paths; a permanently indexed artifact is one contingent mode, not the universal completion criterion.

10.7 Evolution of Circulation Routes, Interrupted Paths, and Non-Return

Circulation paths have histories. An initially personal contact may become an occasional exchange, a maintained catalogue link, a recurring workshop, or a formal collaboration. Another connection may cease when a participant leaves, a contact point disappears, a repository changes policy, or a receiving organisation no longer has a relevant mandate. A work may remain publicly accessible despite having lost the interpretive context required for its responsible use. Conversely, a previously marginal expression may become meaningful when a later subject encounters a different problem. These cases show why the Commons should not treat external interfaces as an unchanging map between fixed organisational categories.

Chapter 9 explained how cooperative practices may emerge and how their repeated use can become a possible object of institutional recognition. The corresponding circulation problem is narrower: what information and relationships allow a *path* to remain intelligible as practices and environments change? A lightweight directory may need to register that an external contact no longer receives submissions, that

a formerly suitable route now involves an additional permission requirement, that a physical exemplar is no longer available, or that a later derivative work is maintained elsewhere. Such updates can be made voluntarily by a willing maintainer, by a properly designated steward, or by occasional verification appropriate to the use. An unmaintained directory that falsely implies live support can be less useful than no central directory at all.

Evolution can also generate competing paths. A student may submit a robotics idea to a voluntary Commons discussion, receive engineering feedback, and later develop a different application independently. One branch might lead to an open teaching tool, another to proprietary commercial work, and a third to an abandoned prototype. The branches may be historically related without being part of one continuously governed Commons project. Where permitted by the relevant rights, later users may draw upon an older artifact without requiring the original author to return as a collaborator. The Commons should preserve the distinction between a historical link and an ongoing governance relationship. A route may therefore terminate institutionally while the legally and practically available work continues elsewhere.

The notion of *return* also requires care. Value may develop beyond the originating Commons with no material return to its creator or founding organisation. A freely distributed teaching aid could be useful to distant educators who neither contact its author nor contribute back. The author may regard that outcome as entirely satisfactory; an open Commons should not automatically classify it as leakage or failure. A return may instead be indirect, delayed, or non-monetary: a later correction, translation, relationship, new problem, or capability can become available to someone else. At the same time, maintaining a public route has real costs. An aspiration to unrestricted generosity cannot erase exhaustion, unequal maintenance burdens, or a creator's decision to change the terms of future participation. The analysis in the subsequent stewardship chapter will ask which costs should be supported, by whom, and under what justifiable conditions.

For comparative analysis, a route's persistence is not a sufficient performance criterion. One long-lived interface may preserve errors and reinforce unequal access, while a short-lived exchange may successfully serve a limited need. A route's disappearance may represent neglect, deliberate closure for safety, appropriate withdrawal of consent, or the successful transfer of support to an existing institution. Distinguishing these outcomes calls for historical and contextual evidence. A design that rewards only growth in cross-institutional links may encourage indiscriminate referral, oversharing, and perpetual maintenance obligations. A generative field must preserve the possibility of revision, non-adoption, and closure as legitimate aspects of its evolution.

10.8 Heterogeneous Dissemination Scenarios and Simpler Institutional Alternatives

The following scenarios are constructed comparisons. They describe neither actual university-hospital events nor established projects, funder responses, or measured effects. The purpose is to test whether the distinctions developed in this chapter identify different routes and safeguards when the form of value creation changes. Table 12 explicitly includes cases in which ordinary processes may be preferable to a new Commons service.

The educational and robotics cases illustrate distinct relations between an artifact and the possibility of further action. An educational exercise may circulate through legitimate public materials even if the originating university hospital has no direct interest in its use. Its teaching relevance depends on the recipients' setting and cannot be inferred from downloads. For the robotics case, a designer might make a simulated controller available for criticism while retaining a physical prototype under restricted access. The controller and prototype have different test requirements and rights. A student may then seek appropriate university or professional support; a Commons link can help identify an audience, but cannot cause that audience to accept the project. A negative operational assessment need not defeat independent engineering continuation.

The service-suggestion and sensitive-account cases illustrate why circulation is not identical to publicity. A suggestion about volunteer orientation might be routed through an existing departmental channel

Table 12: Hypothetical circulation paths and institutional countercases. A possible route does not establish recognition, permission, uptake, or benefit.

Creative expression	Possible audiences and mediation	Boundary or simpler alternative
Educational exercise	Educators, adult-learning researchers, public workshops; contextual description and invited critique.	A university course repository and ordinary peer discussion may already suffice.
Robot control and physical prototype	Engineering peers, maker groups, potential technical collaborators; source code, diagrams, simulated demonstration.	Technical inspection differs from authorised physical testing; existing laboratory facilities may be sufficient.
Volunteer service suggestion	Relevant supervisor or qualified service-improvement group; limited account of a general process issue.	Ordinary volunteer feedback may be safer and less burdensome than public exposure.
Community art or performance	Community members, arts organisations, cultural spaces; authorised images or participatory discussion.	Representation, publicity rights, and performers' preferences limit what should be recorded or broadcast.
Open software utility	Existing code communities, documentation users, maintainers; public releases and optional issue discussions.	An established repository may already provide adequate circulation without Commons duplication.
Sensitive experiential account	Competent safeguarding, complaints, or support channel; private communication if appropriate.	A public Commons catalogue is inappropriate; protected channels and non-disclosure may be the correct outcome.
Locally adapted civic practice	Community networks or interested service organisations; explanation and adaptation rather than identical replication.	Local context and affected participants require independent judgment; the Commons cannot certify transferability.

and produce an improved public explanation if an authorised team finds it suitable. An account containing identifiable patient details, allegations concerning a worker, or an immediate safety concern may call for protected complaint or reporting routes rather than discussion among an open technical community. Where a Commons would create additional delay, confusion, or exposure, *non-routing through the Commons* can be the analytically preferred decision. The existence of an inventive idea does not dissolve the rights of others whose information or working conditions are implicated.

The art and community-practice cases show the inadequacy of a universal file-centred interface. A performance might create shared experience without producing an artifact the performers wish to distribute. A community practice may be discussable in general terms but dependent on trust and local understandings which cannot be exported as a ready-made procedure. Translation can involve active participation and negotiation, not simply copying a representation. The Commons can facilitate a voluntary introduction or supply a contextually adequate description without owning the activity or claiming that an outside organisation should replicate it.

The open-software case is deliberately simple. If an author already uses an established repository, a public licence, adequate documentation, and an active issue channel, the marginal value of a new Commons distribution service may be close to zero. A useful Commons contribution might only be an optional link for a particular cross-domain audience. Conversely, if a non-technical community cannot interpret the existing repository, limited translation support might be justified. These are competing hypotheses, not a mandate to rehost, catalogue, or promote every work associated with the hospital environment.

10.9 Evaluation of Circulation Infrastructure and Generative Consequences

The proposed circulation field is a design hypothesis which can be compared with ordinary professional exchange, public catalogues, existing institutional referral procedures, and general-purpose repositories. Evaluation should begin by identifying the *decision unit*: an expression in a defined disclosure context, a

possible recipient, and a specified contemplated action. The test should then distinguish whether a route could be identified, whether it was appropriate to use, whether the recipient actually encountered the expression, what interpretation or decision followed, and which consequences can responsibly be inferred. Observing more links is insufficient evidence of better matching. Observing uptake is insufficient evidence of benefit. Conversely, a properly declined referral may indicate that a protective institutional interface worked as intended.

A first stage can use public or synthetic cases with different expression types, recipient competences, consent limitations, and evidentiary gaps. Evaluators might receive the same information through three alternative interfaces: ordinary prose and existing contacts; a simple list of existing external routes; and the proposed, more explicitly typed circulation records. Their tasks would be to identify a suitable route or state that none can yet be justified, distinguish transmission from official endorsement, recognise conditions requiring competent authorisation, and identify where additional contextual explanation is needed. Outcomes could include missed legitimate audiences, unjustified routing, incorrect assumptions about licence or approval, overconfident interpretations of value, time and effort required, and accessibility to differently situated participants. A correct “insufficient evidence” or “use the ordinary reporting route” should count as a substantive correct answer. Synthetic comparison can test the framework’s discriminating capacity, not its actual effects in a hospital.

A second stage, contingent upon appropriate cooperation and approvals, could study whether newly available connections make independently valued creative work feasible, whether creators perceive added autonomy or unwanted obligations, and whether receiving groups gain usable contextual understanding. Such work should also investigate the subjects whose contributions were not selected for circulation: low-volume contributors, people without time to prepare professional presentation materials, participants who decline public identification, and those whose preferred communication modes are not digital. Samples drawn only from visible successful projects cannot support general conclusions about inclusiveness or benefit. Independent assessments of intended and unintended effects would be necessary, particularly when decisions have consequences for patients, staff, or dependent participants.

Competing explanations must be considered. A recognised student project may owe its continuation to a helpful supervisor, existing engineering networks, an unusually motivated participant, or an ordinary university programme rather than the Commons routing interface. An increase in website views might result from publicity while leading to no additional meaningful use. A Commons might appear highly successful because only already well-connected people publish there. Equally, participants might prefer independent circulation, and the Commons might create coordination overhead without improving the available paths. These alternatives must remain capable of disconfirming the added value of the proposed field.

A stronger Commons-specific finding would require evidence that the *additional connection mechanism*, compared with a plausible simpler alternative, changed a consequential opportunity under otherwise reasonably comparable conditions. For instance, the route might allow a previously isolated teaching method to reach an interested community that could not realistically discover it through the original repository, while preserving the creator’s rights and requiring only sustainable maintenance. Even then, whether later use is beneficial, whether the originating creator gains capabilities, and whether a Commons should continue maintaining the route are further questions. Some may remain undecidable from available records. The appropriate outcome can be selective retention of a useful interface, modification of its disclosure rules, or discontinuation of a function that fails its own comparative test.

This chapter thus identifies circulation as a conditionally governable set of historical relationships rather than a pipeline from creation to institutional approval. The proposed Commons may support varied expressions and plural paths, including paths beyond its own boundary, without holding exclusive rights over value or requiring that benefits return to the point of origin. Its distinct design problem is to keep the opportunities for relevant encounters intelligible, authorised where necessary, and proportionate to actual maintenance capacities. Chapter 11 examines how some of these encounters may be followed by external recognition, resource mobilisation, or other support decisions. Chapter 12 will separately analyse continued resource access, stewardship, and the reproduction or depletion of generative capacity.

11 Institutional Recognition, Resource Mobilization, and Support Pathways

This chapter examines what can happen when a creative trajectory encounters an institution capable of evaluating it, supplying resources, establishing a collaboration, or making a decision within its own competence. Section 10 examined dissemination and circulation paths, including how a work might reach new audiences without entering a mandatory central clearinghouse. The present analytical object is different: the receiving actor's *situated decision and material response*. A connection to a university department, public agency, community foundation, professional association, enterprise, or hospital is neither a decision to support the work nor evidence that its creator meets applicable conditions. The proposed Commons should make relevant opportunities more intelligible where it has a justified role, while preserving independent evaluation, the creator's freedom to decline, and the receiving institution's power to refuse. The chapter develops a typology of recognitions and resource commitments, a partial record of support decisions, and comparative countercases across heterogeneous forms of value. Its design proposals are preliminary analytical constructions rather than descriptions of an operational university hospital Commons.

11.1 Recognition as a Scoped Institutional Relation

Recognition is often treated too loosely in discussions of innovation or public benefit. An educator can acknowledge that a student-designed exercise is interesting without agreeing to use it in a class. A laboratory can regard a robotic control algorithm as promising without offering equipment. A hospital can accept that a volunteer's account describes a genuine inconvenience without authorising a proposed change in patient-facing services. A funding body can find an application within its programme's scope yet decline to award funding. These are different relations with distinct evidence, authority, consequences, and time horizons. The Commons should not collapse them into an interface field reading simply "approved."

For the purposes of this inquiry, *institutional recognition* is a situated act in which an actor, acting in a specified capacity, takes a position concerning a claim, activity, contribution, or proposed use. The position may be favourable, critical, qualified, indeterminate, or a reasoned refusal. Its significance depends on the actor's competence and the particular object assessed. *Support* is a distinct relation involving a specified commitment of access, labour, expertise, space, money, equipment, visibility, or another enabling condition. Recognition and support may be related, but one need not produce the other. Some forms of support require no evaluative endorsement beyond satisfying transparent access conditions; an open community workspace may lend a tool to a qualified user without judging the project's social importance. Conversely, a recognised public contribution can remain unsupported because resources are finite.

The three-level generative relational discipline constrains these descriptions. At the level of *ontological reality*, the inquiry suspends the claim that institutional recognition either creates the ultimate value of a work or reveals its essence. At the level of *relational reality*, institutions possess historically constituted competences, budgets, facilities, obligations, reputational effects, and dependence relations. An award or authorised collaboration can materially change the creator's feasible activities even when the underlying work does not change. At the level of *manifestation reality*, decision letters, websites, meeting minutes, platform labels, public endorsements, recorded transfers, and interviews are partial observations of the relevant relations. A recorded endorsement may misdescribe the competence of the speaker; the absence of a public record may conceal an actual contribution; a grant announcement does not establish that equipment was delivered or a promised activity completed.

The study therefore distinguishes *the actor's evaluative claim*, *the actor's authority to make a particular decision*, and *the effective consequences of that decision*. Section 4.3 already introduced qualified value claims (Equation (6)). Such claims can inform institutional deliberation, but cannot by themselves substitute for a legally or organisationally competent decision. An institution's adverse evaluation is likewise not a general verdict that the work lacks value outside that context. An engineering prototype

may fail a specified clinical-safety review and remain valuable for technical education, accessible-design research, or a different application.

11.2 Receiving Institutions, Distinct Missions, and Support Objects

A university hospital Commons potentially intersects organisations with different missions, yet should not become a fictive organisation superior to them. A university faculty or school may consider educational quality, scholarly merit, and the fit of a collaboration with its research and teaching obligations. A hospital's competent department may consider service quality, patient safety, professional duties, procurement, and operational sustainability. A community group may evaluate accessibility, local usefulness, reciprocity, and the ability of members to participate without disproportionate burden. A public funding agency may assess formal applicant eligibility, programme priorities, scientific or practical merit, budget conditions, and accountability. A business may investigate technical feasibility, rights, commercial interest, and contractual responsibilities. An artistic or cultural institution may respond to expressive, participatory, curatorial, or public-cultural considerations. These are *illustrative domains of assessment*, not fixed universal mandates for institutions bearing those names.

A work may encounter several such assessments without there being any single institutional hierarchy. A student who develops a robot can first ask a laboratory for methodological feedback, seek independent mentorship, show a simulation at a maker workshop, consider a university's innovation service where eligible, or decline institutional involvement. A community educator may exchange an accessible learning tool directly with a local organisation; no school dean, ministry, hospital director, or funding body necessarily occupies a required intermediate position. Referral should be based on a recipient's actual competence, stated purpose, and willingness to receive the particular expression, rather than the social prestige of the receiving institution.

The external literature already contains developed accounts of such relations. The World Intellectual Property Organization describes varied pathways for technology transfer, including publication, presentations, contracts, collaborative research, licensing, and enterprise formation, while stressing that ownership and agreements require contextual specification (World Intellectual Property Organization, 2026b). This is relevant as an example of differentiated transfer channels, not as evidence that commercialisation is the proper destination of Commons creation. The OECD and Eurostat's *Oslo Manual 2018* distinguishes ideas and prototypes from innovations introduced or made available for use, and recognises innovation across institutional sectors (OECD and Eurostat, 2018). The latter is a measurement convention with a particular analytical purpose. A rejected or unfinished artistic work, educational question, or prototype may still have relational and generative significance even where it fails that convention's implementation threshold.

A receiving institution's resource *object* must also be specified. The phrase "institutional support" can refer to an expert consultation, official affiliation, authorised access to a workshop, in-kind materials, funding, a publishing opportunity, a licence, a service contract, an undertaking to host a public event, or permission to conduct a specified activity. Each changes a different practical relation and exposes different duties. Funds offered for a narrowly defined project are not interchangeable with unrestricted resources; borrowing equipment does not transfer ownership; academic endorsement does not grant hospital entry; referral to a funder does not certify applicant eligibility. This specificity prevents Commons participants from mistaking a broad language of mutual support for commitments that no actor has accepted.

11.3 Institutional Decision Records and Non-Transferable Competence

The route-record model of Equation (18) captures a candidate path between an expression and a recipient. To represent the recipient's response without converting a path into an approval, we propose an additional *decision-claim record*. For an identifiable recipient actor a , an expression or proposed practice e , and a

requested support object q , let

$$\text{DecClaim}_{c,t}(a, e, q) = \langle \varrho, \omega, \zeta, \epsilon, \gamma, \tau, \nu \rangle. \quad (21)$$

Here ϱ denotes the recipient's claimed institutional role or competence; ω identifies the precise decision object, such as eligibility, expert review, resource access, sponsorship, funding, affiliation, or permission to operate; ζ records the decision claim and its qualified status; ϵ records the evidence, reasons, and possible objections; γ specifies conditions, dependencies, limitations, and the responsible decision-maker; τ distinguishes decision, validity, and recording times; and ν records the provenance of the decision communication and who may verify it. The schema can describe both positive and negative assessments, as well as a question not yet resolved. It does not purport to decide jurisdictional competence or the legal validity of a document by machine inference.

The type of q is essential. A verified decision about grant eligibility cannot be joined with a route record to derive an actual grant award; a grant award cannot be used to infer authorisation for an unrelated hospital activity; and a general research affiliation cannot resolve third-party rights in a physical artifact. We express selected logical restrictions for an indicated context, actor, and requested use as follows:

$$\begin{aligned} \text{Routed}(e, a) &\not\Rightarrow \text{Reviewed}_a(e), \\ \text{Eligible}_{a,q}(e) &\not\Rightarrow \text{Committed}_{a,q}(e), \\ \text{Praised}_a(e) &\not\Rightarrow \text{Funded}_a(e), \\ \text{Supported}_{a,q}(e) &\not\Rightarrow \text{AuthorisedUse}_h(e), \\ \text{ResourcesCommitted}_{a,q}(e) &\not\Rightarrow \text{ResourcesUsable}_{s,c,t}(e). \end{aligned} \quad (22)$$

The symbol h denotes a separate competent host institution, while s denotes a potential user or creator. These are non-entailments, not assertions that the indicated consequences cannot follow after additional decisions, delivery, access conditions, or evidence. *Committed* means that an identified actor has made a specific commitment under stated conditions; it is not inferred from praise, publicity, or the Commons' own aspiration. The difference between committed and usable resources requires the feasibility analysis developed in Chapter 6, especially Equation (10).

For empirical work, a decision record should permit the status *not yet evaluated*, *unable to verify*, *outside the recipient's remit*, *under review*, *conditional*, *declined*, *withdrawn*, or *effective within scope*, without treating every negative-looking label as equivalent. These examples are not asserted to be the vocabulary of any particular university or funding body. A decision can be outside scope because the recipient lacks authority to decide; it can be declined despite falling within scope; it can be withdrawn by the creator without any institutional judgment of merit. The record should also preserve whether a conclusion came from the receiving actor or from a Commons facilitator's preliminary interpretation. Otherwise the platform itself risks acquiring an apparent authority that it was never delegated.

11.4 Cross-Record Linkage and the Limits of Support Inference

An institutional support interface becomes most difficult to assess when a sequence of separately intelligible records appears to describe one continuous process. A problem expression from Section 7.1, a creative trace from Equation (13), a circulation claim from Equation (18), and the decision claim in Equation (21) can refer to related people or artifacts. They need not describe the same activity, the same authorised use, or a causal sequence. A named robot, for instance, may refer to a digital simulation in one record and to an intended physical operation in another; a reviewer may recognise the former and have no competence over the latter.

The proposed Commons may therefore examine a *candidate linkage* between two legitimately accessible records without merging their claims. For records r_i and r_j drawn from potentially different domains, an explicitly stated prospective use u , and the assessment context (c, t) , let

$$\text{Link}_{c,t}^{\text{cand}}(r_i, r_j; u) = \langle \text{Type}(r_i), \text{Type}(r_j), \text{ScopeMatch}_{c,t}(r_i, r_j; u), \text{Evidence}_{c,t}(r_i, r_j), \text{Disclosure}_{c,t}(u) \rangle. \quad (23)$$

The first two components retain the records' original kinds: expression, artifact history, possible route, competent decision, resource-access claim, or maintenance undertaking. **ScopeMatch** examines the identity of the relevant activity, artifact or practice, version, actual use, institution and applicable times. **Evidence** preserves contrary accounts and unresolved identity or causality; **Disclosure** states whether inspection and linkage for this purpose are appropriate. This is an *analytical candidate*, not a database instruction to combine protected files. A record may be entirely valid in its own domain while the proposed linkage is impermissible, misleading, or indeterminate.

Case identity, time, and inspection conditions. A proposed linkage is meaningful only within an explicitly specified comparison episode. The later case key in Equation (39) fixes a subject or affected group, a bounded activity, context, observation interval, candidate domain, and a permitted episode or trajectory relation. For a given case key κ , records need not share an internal database identifier, but the researcher must explain how the alleged activity, object version, purpose, recipient, and relevant event times correspond. The formation time of a record must be distinguished from the time of the event it describes and the time at which a permission or decision was applicable. An evaluator cannot silently use knowledge first obtained at t_1 as though it had established what an actor knew at t_0 .

The expression in Equation (23) is intentionally a *partial descriptive signature*. It is not an executable join, a universal matching rule, or a claim that linkage is transitive. If a creator's private account cannot lawfully be inspected for the proposed purpose, the candidate pair is *outside the permitted comparison*, rather than a zero-valued observation. If inspection is permitted but version identity remains unresolved, the relation remains *indeterminate*; a later matching repository title does not close the gap. The same discipline applies to temporal scope: a decision recorded on a later date may be evidence of a decision about an earlier episode, but it is not evidence that the earlier actor had the decision, the required knowledge or usable resources at that time. Where an access permission covers only one use or effective interval, matching project names does not extend that permission to an earlier event or a new use. If two links share an intermediary, no third link follows without independent evidence and a justified inference rule. These distinctions keep the cross-record analysis compatible with the evidence and opportunity comparisons in Chapter 17.

For inference, the task is to specify the *additional proposition* sought. A historical relationship between a volunteer's observation and an educator's later exercise does not establish that the former caused the latter. A verified route to a grant office demonstrates a possible or actual contact, not the recipient's eligibility decision. Even a verifiable award letter needs separate information about its conditions, disbursement, and permitted expenditure before it helps establish usable resources. The constraints of separate inference are summarised in Table 13.

The distinction is especially important where people legitimately withhold information. An artist may not consent to connect an intimate performance with a public creator profile; a patient may report an experience through a confidential channel that cannot be repurposed as a Commons case; an independent collaborator may refuse association with an institutional project. Respecting those boundaries can leave an analytically incomplete trajectory. The resulting uncertainty is a property of the evidence accessible for this inquiry, not proof that the persons failed to contribute. The representation should allow an item to be *not lawfully inspectable* rather than treating it as a negative finding.

Neither the linkage in Equation (23) nor the table creates a new authority level. Existing provenance standards can help express a supported relationship between entities, activities and agents (World Wide Web Consortium, 2013); cataloguing standards can support the discovery of some digital resources (World Wide Web Consortium, 2024a). Neither proves the truth of a contested influence claim, confers a right to use material, or authorises a hospital intervention. If an ordinary laboratory record and a direct communication from the competent recipient provide a sufficiently accurate answer, a more elaborate Commons linkage brings no necessary gain. The independent empirical question is whether such distinctions improve correctly bounded decisions at reasonable cost; Section 17.6 develops that comparison separately from any claimed improvement in actual creative opportunity.

Table 13: Proposed cross-domain inference checks. Each row describes an analytical question, not a real hospital procedure or a confirmed chain of impacts.

Candidate connection	Additional evidence or competent act	Conclusion not established by linkage
Problem expression / creative trace	Appropriate identity, independent temporal evidence and consent for any disclosed association	A submission did not necessarily initiate, cause, or oblige the later creation
Creative trace / external route	Specified version or practice, lawful disclosure basis, originator’s applicable choices and receiving scope	A historical derivative claim is not permission to publish or a successful transfer
External route / recipient evaluation	Independent evidence of actual reception and a recipient’s qualified evaluation in an identified capacity	Referral and exposure are not institutional endorsement
Decision claim / resource access	Decision object, applicable conditions, current availability, authority and evidence of delivery	An award, favourable review or active credential is not usable access for a new task
Resource use / stewardship	Identified custodian’s accepted work, actual time and materials, review interval and right to discontinue	Use or contributor credit does not impose an indefinite maintenance obligation
Observed uptake / future capability	Contextual outcome evidence, affected subjects, feasible next activities, burdens and a plausible comparator	Uptake, citations or apparent popularity do not establish generative reproduction

11.5 Eligibility, Resource Commitments, and Practical Feasibility

The presence of an available programme or a sympathetic reviewer is not sufficient to mobilise usable resources. Eligibility, selection, budget authorisation, contractual acceptance, actual delivery, permitted use, and continuing access can occur at different times and involve different actors. Where a creator lacks the institutional status required for a formal application, the Commons may help locate an existing eligible partner or explain a different route, but cannot manufacture eligibility by registering the proposal on its own platform. A potential partner must have independent reasons to participate and retain the right to decline. An affiliation offered solely to overcome application restrictions can create misleading representation, conflicts of interest, and administrative burden if it has no substantive basis.

Differences among actual funding frameworks illustrate the point without providing a universal model. The U.S. National Science Foundation’s Proposal and Award Policies and Procedures Guide (PAPPG 24-1), effective from May 2024 and supplemented by subsequent notices in 2025–2026, supplies one *time-indexed* illustration: proposer eligibility, submission procedures, and exceptions require the effective guidance and particular solicitation to be checked, not inferred from a student’s membership of a Commons (U.S. National Science Foundation, 2024). The European Research Executive Agency’s Horizon Europe guidance describes organisational capacity requirements and consortium conditions applying to many, but not all, calls (European Research Executive Agency, 2026). In Japan, JST’s A-STEP programme has multiple schemes and call-specific arrangements for translating research results toward application (Japan Science and Technology Agency, 2026). These examples are deliberately heterogeneous. A student with a Commons project is not thereby an eligible applicant to any of these schemes; a ministry is not necessarily the superior reviewer for every proposal arising in a university. Eligibility criteria, call dates, contractual conditions, and funding availability change and would need fresh review at the actual date of application.

Resources themselves are heterogeneous. One volunteer may need an hour of advice from an educator; another creator may need a licensed computer-aided design programme, a safe laboratory, and trained supervision. A community arts collaboration may benefit from a room, accessible materials, transport, a small stipend, or help translating an invitation. Some contributions require long-term storage, software updates, insurance, or replacement parts, creating obligations that exceed a one-time grant or donation. The relevant resource question concerns the relationship between a supported work unit and the *actual means of carrying it out*, not whether a favourable funding announcement appears in a database.

Let $Q_{s,p,c,t}$ be a proposed and suitably scoped support bundle for subject s and work unit p in context

c at time t . A conservative record of feasible resource mobilisation can use the following condition:

$$\begin{aligned} \text{Mobilisable}_{s,p,c,t}(Q) = \text{supported} \quad \text{only if} \quad & \text{Commitment}(Q) = \text{supported}, \\ & \text{ConditionsMet}_{s,p,c,t}(Q) = \text{supported}, \\ & \text{Usable}_{s,p,c,t}(Q) = \text{supported}, \\ & \text{MaintenanceAccepted}_{p,c,t}(Q) = \text{supported}. \end{aligned} \tag{24}$$

The four status terms are evidence-qualified, activity-specific assessments. They are neither numerical values nor declarations by the author that all legal requirements have been satisfied. If one is unknown, the indicated supported conclusion is unavailable; if a condition is explicitly denied, the corresponding proposed use may be excluded. The point is not to create an additional form to submit for every small act. Equation (24) expresses what the comparative researcher must not silently assume when evaluating a claim that a new Commons has converted an external opportunity into usable creative capacity. Whether the project then produces a valued outcome remains a separate question.

Resource mobilisation can also be inappropriate. A laboratory should not be asked to supervise a prototype for which it lacks safe capacity simply because the student has made a compelling presentation. A hospital department may be responsible for a clinical service that benefits from an innovation idea, yet have no time, budget, or mandate to develop it. A public institution can decline to undertake work outside its mission. The Commons should be able to document these limits without judging every refusal a failure, and should consider whether an ordinary public facility, departmental advice, an existing grant office, or no further institutional action is the sufficient solution.

11.6 Translation, Negotiation, and the Creator's Independent Purpose

As Section 10.3 explained, a circulating expression may require translation to be intelligible to a new professional community. At the recognition and support stage, such translation can become a negotiation over purposes, performance claims, rights, and resources. A robot created to explore an engineering technique may be described as a potential logistics tool when a hospital audience is approached. That description may help a competent reviewer consider an applicable use, but it also risks overstating the evidence or making clinical usefulness appear to be the creator's original objective. A student may value the robot as an educational experiment even if no hospital wants to operate it. The proposed Commons should keep both accounts intelligible rather than make institutional interest the sole measure of the work.

Support can alter the proposed work itself. A sponsor may reasonably ask for documentation, milestones, safety tests, public engagement, or specified outputs. The creator may accept some conditions, seek changes, or decline the arrangement. The consequences can include a new collaborative trajectory, a narrower deliverable, a change of ownership or licensing claims, or a new burden on colleagues. None of these transformations is inherently illegitimate; each requires transparent conditions and appropriate consent or agreement. WIPO's discussion of technology transfer notes the importance of institutional intellectual-property policies and agreements covering background and newly generated intellectual property (World Intellectual Property Organization, 2026b). The lesson for the Commons is to make the relevant choice visible, not to replace competent legal advice with a platform's default declaration that all co-created outputs are public property.

This problem extends beyond technology. A volunteer's proposal to simplify wayfinding might be shared with a service manager, who finds the problem real but proposes an intervention that the volunteer does not support. A community artist may receive an exhibition invitation that conflicts with participants' privacy expectations. An educational researcher might receive financial support only if the teaching tool becomes proprietary, potentially limiting the public access that originally motivated its creation. A local organisation might offer space for a workshop but expect unpaid organisers to perform continuing work. These are not failures of "matching" alone. They involve changes to relations of control, attribution, labour, accountability, and possible benefit.

One practical design response is to treat the expression presented to a potential supporter as a *scoped invitation*, not a mandate to negotiate on the creator's behalf. The creator can specify what is available for

discussion, whether contact information may be forwarded, whether a prototype can be inspected, which rights remain reserved, and whether further contact is welcome. Those declarations still require case-specific legal analysis when rights are contested; a Commons interface cannot certify their enforceability. The platform should not attach an unrequested commercialisation or publication plan to an independently initiated creative trajectory. The possibility of a well-reasoned refusal protects both institutional autonomy and the creator's freedom to preserve a different direction for the work.

11.7 Visibility, Gatekeeping, and Unequal Credibility

Recognition and support are conditioned by inequalities in language, professional prestige, available time, institutional affiliation, financial capacity, physical accessibility, and networks of acquaintance. A hospital employee may know exactly which department can respond to a work problem; a short-term volunteer may not. An established academic may interpret a funding announcement correctly, while a student may lack access to an eligible applying organisation. A prototype presented in fluent technical language may attract a reviewer more readily than an experiential insight expressed informally by a patient or family member. The availability of a formal pathway is not therefore the same as a similarly feasible pathway for all subjects.

A Commons can respond by making the competence and access conditions of routes more intelligible, providing optional assistance with appropriate introductions, supporting accessible forms of expression, and allowing participants to contest misleading records. Yet each remedy imposes stewardship costs. A supposedly neutral ranking algorithm may privilege already well-documented projects, while displaying endorsements prominently can amplify existing disparities in reputation. An invitation to submit a proposal may favour participants with time to write formal applications and exclude those occupied by care, disability, wage labour, or other constraints. A fairer arrangement is not necessarily one that promotes all proposals equally, which may be impossible, but one that can explain the bounded criteria for particular kinds of support and reveal whose opportunities remain structurally inaccessible.

The initial field should not use human participants as a population of contestants to be selected by a fitness function. Evolutionary comparisons apply to practices, support arrangements, and changing opportunities, not to the worth of patients, volunteers, students, or staff. The social interpretation of "success" requires critical scrutiny: frequent institutional endorsement can represent high relevance, social capital, preferential access, or conformity to dominant priorities. An unsupported proposal can have genuine potential and nevertheless lack a viable route under present constraints. Conversely, a proposal can be richly publicised while failing an independent test of usefulness. These counterpossibilities make recognition patterns evidence for inquiry, not a final measure of generative value.

The ability to refuse support also has distributive significance. A receiving institution may justifiably decline where it lacks competence, has incompatible obligations, or would be exposed to unreasonable costs. But a succession of opaque refusals can make less connected participants unable to understand whether the obstacle is technical quality, eligibility, a temporary budget limit, or simple lack of attention. Where feasible and appropriate, the Commons might provide general public guidance, an explanation of existing procedures, or routes for correction without demanding that external reviewers disclose confidential deliberations. It must not promise an appeals mechanism against decisions for which it has no jurisdiction.

11.8 Refusal, Feedback, Conditional Commitments, and Historical Records

A support pathway should be designed for non-successful outcomes from the beginning. A recipient may not answer; a researcher may withdraw a request; an advisory office may suggest a different institution; a committee may decline the project; a collaborator may agree only to one task; or an award can be conditional on a later agreement. Treating silence, referral, rejection, conditionality, and withdrawal as one failed state loses information about the relational history and can produce pressure to keep seeking support after the creator wishes to stop.

For a participant, meaningful feedback may concern a precise gap between the proposed work and the recipient's needs, or between an available resource and a required safety condition. It need not supply a positive evaluation. Nor does a person who shares a helpful comment automatically assume the continuing role of mentor or Commons steward. A useful record can identify that advice was voluntary, limited in scope, and not an endorsement of later applications. If participants consent and relevant confidentiality restrictions permit, selected feedback may inform subsequent iterations of the work; otherwise its disclosure and retention may be restricted. The creation of a Commons record is a separate action from the institution's decision itself.

Institutional support may also be delayed relative to the originating contribution. A student might share a prototype in one year, receive an educational review later, and gain access to a maker facility after graduation through an appropriate visiting-user arrangement. An exhibition may become feasible long after an artwork was first proposed; a community organisation may revive a dormant idea after obtaining accessible premises. Such events should not be rewritten into an uninterrupted funding pipeline. The identity of the creator, the responsible supporting institution, the permissions in effect, the available evidence, and the resource context may have changed. Historical records can help an investigator reconstruct the sequence without authorising an imagined continuity of access or affiliation.

In addition, a route can produce useful information without yielding a commitment. A specialist's explanation that a robot cannot meet a particular safety requirement may prevent wasted expenditure while allowing the developer to continue an unrelated engineering investigation. A refusal accompanied by a reasoned account can alter a creator's feasible opportunity set, but the absence of an award does not itself show that an evaluative process produced such benefits. The Commons should not count every rejection as developmental feedback merely to inflate a claim of social impact. Where no response is provided, that absence remains an evidentiary limitation, not a defect to be filled with an imagined rationale.

11.9 Comparative Support Scenarios and Institutional Alternatives

Table 14 assembles hypothetical cases to test whether a Commons support interface adds a defensible relation beyond existing professional, institutional, and public routes. Its outcomes are possible observations, not empirical findings or recommendations to an identifiable hospital. The comparisons hold constant the creator's work and identify what kind of external decision would be required before a positive support claim could be warranted.

The cases illuminate different kinds of value. A robot rejected for clinical use may acquire educational significance, yet this alternative value does not repair the absence of hospital authorisation. An education tool that is professionally praised but unfunded shows why recognition is not resource mobilisation. A volunteer suggestion that existing service managers handle effectively challenges the need to create an additional Commons referral service. An artwork shared only within a selected circle tests whether circulation can respect a justified limit on exposure. A nominally successful match with undelivered materials tests whether announcements can be distinguished from usable conditions for work.

The examples also place empirical pressure on an assumed expansion principle. If the most effective connection is a direct link to a laboratory, university office, community group, or already established grant-support service, the proposed Commons should record its limited or absent contribution rather than claim the later outcome as its own. Where Commons mediation does matter, the incremental mechanism must be identified: perhaps the creator discovered a competent but previously unknown audience, received a translation that preserved rather than altered the relevant claim, or obtained accurate eligibility information before investing time in an inapplicable application. Those mechanisms require evidence, not attribution by association.

11.10 Evaluation of Support Infrastructure and Rival Explanations

The central evaluative question is whether the Commons enlarges legitimate and usable opportunities for creation, collaboration, or beneficial circulation, relative to less elaborate alternatives, without creat-

Table 14: Illustrative recognition and support counterexamples. All institutional decisions are hypothetical; each must be independently verified in a real case.

Creative activity	Potential relation and necessary distinction	Counterexample or comparison
Student robotics	Engineering feedback or eligible equipment access; neither establishes operating permission in a hospital.	An ordinary laboratory provides identical expertise more quickly without Commons mediation.
Education study	Educators assess an instructional tool; a funding programme independently assesses applicant and project conditions.	The teaching value is recognised, but the award is declined or the applicant is ineligible.
Volunteer wayfinding suggestion	Competent service personnel may consider a practice change after independent safety and workload evaluation.	A standard volunteer-feedback channel resolves the matter without a new Commons record.
Community art activity	A cultural venue may host a work with permissions appropriate to participants and exhibition conditions.	The artist refuses publicity or a venue's conditions; the work continues elsewhere.
Accessible civic tool	A local group offers in-kind materials and volunteer assistance with clearly bounded responsibility.	The assistance is verbally promised but unavailable when the event occurs.
Open software contribution	A technical community offers review or a maintained upstream route without institutional affiliation.	A direct open-source workflow suffices and no Commons gateway is needed.
Unsupported early idea	The creator requests preliminary advice while no programme or partner can responsibly provide material resources.	The appropriate outcome is a clear limit, independent continuation, or a closed request rather than a fictive commitment.

ing undue burden or institutional confusion. Counting endorsements, forwarded proposals, or available funding links would measure only part of the proposed function. A responsible comparative study should distinguish the accuracy of recipient matching, the correctness of eligibility information, the competent actor's actual decision, availability of committed resources, uptake of resources within scope, continuing work, and independently observed effects. It should also examine false-positive signals: a Commons-branded referral mistaken for an official hospital recommendation; a preliminary evaluator comment presented as an award; a resource promise that participants cannot use; or a publicity gain achieved by disclosure beyond the creator's choice.

One research design could present identical hypothetical cases to readers of three arrangements: (i) ordinary narrative guidance and existing institutional channels, (ii) a concise directory of recipient competences, resource conditions, and contacts, and (iii) a typed, historically aware Commons interface linking route claims to separate decision records. The participant's task would be to identify what has actually happened, what is only proposed, what evidence remains absent, who can make the next relevant decision, and whether the creator is free to decline. Outcome measures would include correct non-inference, inappropriate routing, overlooked alternatives, comprehension burden, data exposure, time cost, and maintenance workload. Correctly answering *insufficient evidence* would be a positive result in cases where records do not warrant an inference. The design should separately assess different experiences of unaffiliated creators, volunteer participants, students, and professionals, rather than taking high institutional familiarity as the default.

A more demanding follow-on investigation could examine observed changes in feasible creative activities over time using the opportunity comparison in Equation (7). Such a study would need independently documented baselines, contextual controls, and methods capable of distinguishing the Commons' contribution from changes in university policy, new funding programmes, personal networks, and individual effort. A record of more completed proposals is insufficient if the new system merely redirects time from independent work toward administrative preparation. Moreover, some external effects may remain outside the originating Commons entirely, as Chapter 10 argued. The evaluation must not demand a measurable financial return from every legitimate act of dissemination.

The design admits clear rival explanations. WIPO-style technology-transfer channels, ordinary pro-

fessional networks, existing university grants offices, community foundations, public innovation portals, or simple interpersonal introductions may already satisfy a creator's needs (World Intellectual Property Organization, 2026b). The institutional diversity analysed by Ostrom (2005) and the co-evolution of actors and institutions discussed by van Assche et al. (2014) supply established perspectives on how particular contexts constrain feasible rules and connections. The proposed GR contribution is narrower: to examine when a scoped account of heterogeneous value, partial support records, creative autonomy, and changing enabling conditions improves inference or opportunity creation in this specific Commons setting. If simpler procedures achieve equal or better legitimate support at lower cost, an additional Commons interface is not justified by the theory alone.

11.11 Institutional Support as a Conditional Input to Generative Reproduction

Institutional recognition can change which creative activities are regarded as credible, who is introduced to whom, which resources become practically available, and what obligations future cooperation may create. These changes can influence the evolution of the Commons field without being proof of a uniformly beneficial trajectory. A grant can enable a project while narrowing its aims; an institutional endorsement can attract collaborators while obscuring earlier contributions; an in-kind donation can create ongoing maintenance work that no actor has accepted. A competent refusal may close one pathway while leaving other forms of value possible. The recognised work, the creator, the recipient institution, and the Commons' own support capacity therefore remain distinct relational objects whose histories may diverge.

The present chapter has concentrated on the possibility and evidentiary status of *institutional support decisions*. It has not assumed that every support decision must produce reciprocal value return, or that benefits must be enclosed within the originating Commons. Chapter 12, *Conditional Resource Access, Stewardship, and Generative Reproduction*, will examine the subsequent and analytically different problem of maintaining usable resources, distributing burdens, and preserving the conditions for further creativity. Chapter 13 will examine evolutionary selection among field arrangements and practices. The connecting proposition is modest: a defensible circulation interface can sometimes improve the chance that a creator encounters a competent and willing supporter, but the legitimacy, material effectiveness, and generative consequences of that encounter must each be independently established.

12 Conditional Resource Access, Stewardship, and Generative Reproduction

This chapter examines the continued availability of creative conditions after a resource has been identified, a contribution has circulated, or an institution has expressed willingness to help. The receiving actor's decision and resource commitment considered in Section 11 are not equivalent to a maintained capacity for subsequent work. Resources can be delivered but become unusable; an artifact can remain visible while its documentation or necessary equipment deteriorates; a participant can leave a formal role while a lawful, independent creative trajectory continues. Conversely, indefinite access or preservation can be inappropriate where privacy, patient safety, third-party rights, maintenance costs, or an individual's withdrawal require a limit. This chapter develops a relational account of conditional access, stewardship, and the reproduction of creative capability. It asks which enabling conditions can responsibly persist, which must change, and who actually bears their costs. The analysis applies to research, education, software, physical artifacts, volunteer improvements, cultural activities, and other forms of contribution. It is a preliminary comparative design inquiry, not a proposed entitlement under any particular hospital's operative rules.

12.1 Resource Continuity as an Activity-Specific Relation

Resource availability is not a single attribute of a Commons or of a person identified as its member. A student might be able to read publicly released training materials indefinitely, access a shared development environment only until an allocated period ends, borrow fabrication equipment for an approved session, and have no authority to enter clinical systems at any time. An educator might retain a permissively licensed teaching document after ending a project but no longer possess institution-issued software credentials. A former volunteer can continue to participate in a public discussion forum without retaining a service badge or the hospital-specific authority associated with an earlier assignment. These examples concern different objects, uses, legal bases, capacities, and temporal intervals.

The relevant unit is therefore a *situated access relation*, not an undifferentiated membership status. For a subject s , resource r , proposed use u , and context c at time t , we propose an access-assessment record

$$\text{AccClaim}_{c,t}(s, r, u) = \langle \rho, \alpha, \sigma, \theta, \chi, \epsilon, \nu \rangle. \quad (25)$$

Here ρ identifies the subject's relevant role without presuming it to be a universal identity; α describes the claimed source and scope of permission; σ records an evidence-qualified status, such as supported, excluded, unresolved, or disputed; θ identifies the applicable interval or review date; χ gives use conditions, such as location, supervision, confidentiality, capacity, or equipment restrictions; ϵ references the evidence and its provenance; and ν identifies the actor or procedure competent to clarify the claim where one exists. Equation (25) describes a *claim about access*, not a token that can confer access. A platform administrator may record evidence of a licence but cannot by that act grant rights belonging to third parties or override an institution's controlling rules.

This formulation supplements the situated enabling bundle in Equation (10) and the support decision record in Equation (21). The former identifies the conditions needed to make a work activity feasible; the latter distinguishes receiving institutions' evaluations and commitments. The present access record concerns whether an intended use of a particular resource remains within an adequately supported permission and operational scope over time. Availability in a catalogue, a favourable decision letter, a transferred file, a functioning login credential, and authorised use are potentially related manifestations but are not equivalent. The formal design consequently retains the non-entailments

$$\begin{aligned} \text{Discoverable}(r) &\not\Rightarrow \text{Permitted}_{c,t}(s, r, u), \\ \text{CredentialActive}_{c,t}(s) &\not\Rightarrow \text{Permitted}_{c,t}(s, r, u), \\ \text{Permitted}_{c,t}(s, r, u) &\not\Rightarrow \text{Usable}_{c,t}(s, r, u). \end{aligned} \quad (26)$$

Permission requires a contextually valid source, while usability additionally depends on working infrastructure and actual capabilities. An unresolved case should remain unresolved rather than being relabelled as either permission or prohibition solely for the convenience of a binary user interface. In real operations, the competent authority must determine what is to be allowed pending clarification, and sensitive or high-risk activity may have to remain unavailable. No proposed Commons notation substitutes for that determination.

For the later evaluation of support trajectories, an access record can be linked to a decision claim only when it concerns a compatible resource, recipient, use and validity interval. Section 11.4 specifies the evidence-preserving comparison. A donor's undertaking to supply materials differs from confirmation that those materials arrived; the recipient's actual ability to use them differs from consent to keep supporting future users. The access and stewardship records in this chapter remain independently qualified, even where a platform presents them on one screen. An institutionally valid withdrawal may render a previously appropriate connection no longer usable. For temporal comparison, a permission should therefore be represented by its issuing source, covered person or role, permitted use and resource, effective interval, applicable termination conditions, and the evidence available to an assessor at the stated review date. Continued possession of a file is distinct from a continuing right to access an institutional service; an expired login is distinct from an expired publicly granted licence. None of these distinctions is resolved by treating a creator's past participation as a permanent Commons membership.

12.2 Role Termination, Continuing Rights, and Conditional Re-entry

The proposed Commons can support participation histories extending beyond a contract, student registration, volunteer assignment, or short-lived project without silently extending the privileges attached to those roles. This distinction responds to a common weakness in time-bounded participation systems: the end of an organisational role may unnecessarily terminate access to independently reusable, properly licensed artifacts or open knowledge relations, even where continued access would impose little additional cost or risk. Conversely, assuming that a former participant is perpetually entitled to institution-funded facilities would conceal resource constraints and the rights of others. The design problem is to identify which access relations survive a role transition and on what terms, rather than to presume either complete deletion or permanent membership.

At least four arrangements deserve comparative consideration. *Publicly available material* may remain accessible under its actual licence or other applicable legal basis, independently of present affiliation. A *time-limited external-user arrangement* might provide selected, non-sensitive project spaces or shared tools subject to capacity, fees if appropriate, identity verification, review, and termination conditions. *Project-specific collaboration* might continue through new consent and formal agreements, with permissions carefully bounded to the identified work and duration. *Institutional operational access*, including clinical systems, staff-only services, sensitive records, controlled spaces, or devices in clinical use, must follow the competent institution's independent rules; previous volunteer participation or a contribution record provides no standing authorisation. These arrangements need not be offered uniformly or at all.

Post-role continuity also raises a temporal distinction among three events: the expiration of an affiliation, the end or modification of a permission, and the loss of practical access to a resource. The three times may differ. Certain public licences, including CC BY 4.0, expressly grant non-exclusive permissions within their specified scope on terms that are not cancelled merely because the licensor's or recipient's institutional circumstances later change (Creative Commons, 2013). Such licence permissions depend on the rights actually licensed and compliance with the relevant terms; they do not carry along equipment use, personal-data access, private facilities, trademarks, moral-rights arrangements, or any absent third-party rights. An institutional access agreement may meanwhile have its own expiry and review provisions. For a robot, a copyright licence over drawings or source code also cannot be presumed to confer patent rights, permission to use institutional space or equipment, approval to make a product available, or an obligation to provide ongoing technical support; those questions require the relevant rights and rules to be identified (Creative Commons, 2013; World Intellectual Property Organization, 2026a). A Commons interface should make these differences legible without claiming to adjudicate legal questions across jurisdictions.

One plausible minimal design is a resource-specific continuation notice generated at an agreed role transition. It need not grant anything. It can identify which materials are independently public, which copies the individual already lawfully holds, which institutional permissions will end, which collaborations may be renegotiated, and whom to contact if review is appropriate. A notice is useful only if it is accurate, understandable, proportionate to the risk, and maintained by a competent actor. A general account deletion with no assistance may be sufficient where there are no continuing legitimate resource relations. A complex identity platform is not justified solely by the possibility that some former participants may later request read access to a public archive.

12.3 Stewardship of Digital Works, Tangible Artifacts, and Practices

A Commons that supports many forms of creativity cannot equate stewardship with storing digital files. Software may require updates, dependency maintenance, security triage, reproducible builds, issue handling, documentation, and governance over accepted changes. Educational methods may require explanatory material, pedagogical revision, accommodation for new learners, and an appropriate way to report unsupported claims. Physical robots or other prototypes may require safe storage, ownership records, inspection, consumables, calibration, disposal arrangements, repair, and controls on where and

by whom they may be operated. Artistic or community practices may be partly embodied in people, relationships, and contextual understandings that cannot be deposited intact into a repository. A local service improvement may lose its relevance when a workflow or relevant institution changes.

The FAIR principles provide an established framework for the findability, accessibility, interoperability, and reuse of research data and related metadata (Wilkinson et al., 2016). In particular, their accessibility principle permits authentication and authorisation procedures where necessary, rather than treating unrestricted public download as a condition of FAIRness. The present paper proposes an *analogy*, rather than direct coverage by the original FAIR article, when considering tools, workflows, physical prototypes, and embodied practices. The principles do not establish permission to reuse protected clinical information or determine whether a device can be used safely. The ISO OAIS reference model is similarly relevant to the idea that preservation involves an accepted institutional responsibility toward a designated community, not just a disk containing files (International Organization for Standardization, 2025). A proposed Commons should therefore be cautious about labelling a document “preserved” when no actor has undertaken the continuing work required for an intelligible, accessible copy. Neither FAIR nor OAIS offers a general solution to maintaining a physical prototype, renewing a paid service, or conserving the tacit skills on which a social practice depends.

For analytical purposes, stewardship can be specified as a partial relation between an object or practice o , a bounded task d , and an actor a . We define a *stewardship undertaking record*

$$\text{StewardClaim}_{c,t}(a, o, d) = \langle \beta, \iota, \lambda, \mu, \pi, v \rangle, \quad (27)$$

where β identifies the claimed basis and scope of responsibility, ι the actor’s actual acceptance or its unresolved status, λ the finite labour, materials, and other resource commitments, μ the relevant maintenance or review interval, π the evidence of work performed and current condition, and v a renegotiation, handover, suspension, or closure condition. An author credit or a list of contributors does not establish ι : the student who designed a prototype is not thereby bound to maintain it indefinitely. Similarly, “community maintained” is not an adequate claim unless identifiable actors, resources, and expectations support it. A single steward may perform several tasks, and several stewards may collaborate on one task; no permanent office is implied by Equation (27).

Maintaining a work and maintaining the *possibility of reuse* can also diverge. A legacy computer programme may no longer run on current systems, but sufficiently clear code, citations, compatibility notes, and licence information might remain valuable for scholarly reconstruction. A dismantled robot might retain educational value through permitted design files and testing history without remaining an operable device. Conversely, a publicly downloadable device design may be unsafe to fabricate or use without expertise and context-specific assessment. The decision to preserve a trace, maintain a usable service, or retain a physical object requires distinct commitments, costs, and authority. Proper cessation and documented limitations can be responsible stewardship rather than a failure to preserve everything indefinitely.

12.4 Maintenance Labour, Hidden Costs, and the Distribution of Burden

The apparent low cost of an open digital platform can conceal a substantial human cost. Reviewing contributions, answering requests, moderating disputes, checking licensing, preserving accessibility, facilitating introductions, updating software, and explaining institutional boundaries all consume attention. Work involving physical artifacts additionally consumes space, electricity, materials, inspection time, insurance or comparable risk-management capacity, and sometimes professional oversight. An account of Commons value that records only visible outputs may therefore reward a growing catalogue of creations while treating essential maintenance as an inexhaustible background input.

The guidance offered to open-source maintainers provides a concrete analogue: an expanding user or contributor base can increase issue handling and communication work, and volunteer maintainers are urged to set explicit limits on their available time rather than promise an unlimited service (Open Source Guides Contributors, 2026). This practical guidance is not a representative causal study of university

hospitals, but it identifies a plausible mechanism for research. The burden can also fall unevenly on people who are least able to refuse, such as students seeking recommendations, volunteers concerned about disappointing coordinators, or employees whose formal duties become informally enlarged. The existence of enthusiasm at one stage is not evidence of perpetual consent. Where continued operation is necessary to an institution's core functions, a volunteer-only maintenance model requires particularly careful scrutiny and may be inappropriate.

The relevant comparison should include visible and displaced costs: paid work, volunteered time, foregone learning, reduced capacity for other responsibilities, storage and renewal, loss of autonomy, and costs transferred to outside partners. These costs are heterogeneous. They need not be converted into a single financial amount to be meaningful. For a steward a over an interval $[t, t + \Delta]$, one can collect a context-dependent vector

$$\text{Burden}_{a,c,[t,t+\Delta]} = \langle h_a, m_a, q_a, \ell_a, \varrho_a \rangle, \quad (28)$$

where h_a is committed or realised labour time (clearly labelled), m_a direct monetary and material inputs, q_a professional or organisational coordination obligations, ℓ_a opportunity losses or foregone activities, and ϱ_a the relevant risk or liability exposure. These coordinates cannot be added without justified, context-specific assumptions. An author's unpaid evening work, a hospital's legal responsibility, and a student's lost study time are not interchangeable units. Records about burden must also avoid monitoring individuals more intrusively than is warranted by the purpose of the inquiry.

A viable design might therefore allow maintainers to set service windows, limit the number of supported projects, place a resource into an archival mode, decline additional requests, or arrange an agreed handover. Some work may be supported through a university unit, a separately funded service, a community partner, or a professional contract. Others may appropriately remain informal because their small scale and low risk impose negligible demand. The Commons should not assign a steward merely because a contributor's profile suggests the relevant skill. The question is whether particular responsibilities are actually accepted and adequately resourced, and whether burdens fall disproportionately on people with weak bargaining positions.

Accepted responsibility across institutional transitions. A possible support pathway in Chapter 11 becomes a stewardship relation only when an identifiable actor has accepted a sufficiently specified task and has access to the resources required to carry it out. For example, a university's positive review of an educational robot may precede, but does not constitute, a laboratory's agreement to store and inspect a physical prototype. The agreement may expire at the end of a semester while a publicly licensed software component remains available to others. A sound comparative account therefore separates the recipient's decision time, each resource's availability interval, and the maintainer's accepted period of responsibility. It also allows a work to continue in another institution without implying that the originating Commons has either retained control or secured a return. These distinctions make continuity a property of actual, situated relations rather than a label assigned to a past contributor.

12.5 Generative Capability and the Conditions of Reproduction

A maintained artifact or an extended access permission is not itself proof of continuing generative capability. A laboratory may store a functioning robot even though the student who built it no longer has time, expert advice, or materials to advance the design. Conversely, a student may lose access to a workshop while retaining new theoretical understanding, independently available software, and relationships enabling work elsewhere. The material inventory of a Commons can increase while its participants' capacity for meaningful independent action deteriorates. The proposed design therefore treats *generative reproduction* as a changing, actor-specific relation among skills, time, resources, permitted activities, social ties, and future opportunities.

Let $\mathcal{A}_{s,c,t}$ denote a specified set of candidate creative activities relevant to subject s in context c at time t . Building on the opportunity analysis in Equation (7), use **Cap** as an *alias for the feasible-activity*

set, not an additional index of personal skill or a second type of opportunity:

$$\begin{aligned}\text{Cap}_{s,c,t}(\mathcal{F}) &\equiv \Omega_{s,c,t}(\mathcal{F}) \\ &= \{p \in \mathcal{A}_{s,c,t} : \text{Ready}_{s,c,t}(p; \mathcal{F}) \wedge \text{WithinScope}_{s,c,t}(p; \mathcal{F})\}.\end{aligned}\tag{29}$$

The contextual field configuration $\mathcal{F}$ includes available resources, legitimate permissions, actual time and competence, material upkeep, and accessible relationships. **Ready** is a substantive feasibility judgment rather than a portal’s “available” label; **WithinScope** is a research assessment that adequate authority and relevant restrictions are satisfied, not an automatically generated legal certificate. Equation (29) describes the activities meaningfully open to a particular subject, not a scalar level of personal worth or a measure of total social value. Here the predicates describe actual situated conditions in the theoretical model; an analyst may have only partial evidence about them. In a retrospective or prospective dossier, an unresolved permission or missing resource cannot be silently counted as a confirmed member of either set. Two subjects can have overlapping but nonidentical feasible sets; different new opportunities may be incomparable in ethical, professional, and material importance.

Reproduction concerns an additional temporal relation. An activity completed at t can expand some components of $\text{Cap}_{s,c,t+\Delta}$ through learning, reusable artifacts, trusted relationships, or newly available resources. The same activity can diminish other components through fatigue, expense, physical wear, dependency on scarce expertise, or reputational and contractual constraint. Accordingly, it is inappropriate to assume

$$\text{Uptake}_{c,t}(o) \not\Rightarrow \text{Cap}_{s,c,t+\Delta}(\mathcal{F}_{t+\Delta}) \supseteq \text{Cap}_{s,c,t}(\mathcal{F}_t).\tag{30}$$

The inference in Equation (30) is deliberately about one actor and an evaluated activity domain. The uptake of an educational resource or robotic component elsewhere may increase another actor’s ability to work and still leave its initial steward with less time and fewer options. A growth in one person’s feasible set need not compensate another’s loss. Empirical analysis must specify the chosen activities, observation horizon, relevant counterfactual, and whose capabilities are being compared before asserting reproduction.

The three-level GR distinction constrains this account. At the *ontological level*, the ultimate status of capability and value is left open rather than defined by the cardinality of a modelled set. At the *relational level*, historically formed abilities and resource conditions can enable or obstruct real activities, with effects that may persist after formal membership ends. At the *manifestation level*, records of workshops used, licences held, contributions accepted, materials consumed, learner assessments, or voluntary accounts offer partial evidence, not full access to lived capacities or long causal chains. An observed rise in downstream citations cannot demonstrate that a particular Commons configuration caused additional capability; background training, university resources, external relationships, and the creator’s independent work are competing explanations.

12.6 Circulation Without Return and Reproduction Beyond the Commons

The value circulation account in Section 10 did not posit a closed circuit of returns to the Commons. That position remains necessary when considering resource renewal. An open teaching method may be used by educators who never join or contact the originating network. A design file can inspire an adaptation in another jurisdiction. An artist may share a work for public enjoyment without wishing to commercialise or institutionalise it. A learner who benefits from public material may produce no measurable reciprocal contribution. These can be consistent with a public-purpose Commons, although they do not by themselves finance its long-term maintenance.

Resource reproduction and value return should therefore be evaluated on separate but interacting planes. First, *external circulation* can generate benefits for audiences not represented in a Commons’ membership data. Second, *field stewardship* requires concrete means of paying for storage, supervision, accessibility, maintenance, and coordination over time. Third, *participant reproduction* concerns whether a specific person or group has retained or improved legitimate opportunities for subsequent creation. The three need not vary in the same direction. For instance, a popular tool can be adopted widely

while an unpaid maintainer’s capacity collapses; a lightly used learning workspace can sustainably nurture a small group; an archived design can produce external value even after its original hosting function ends.

This plurality resembles concerns about resource governance already developed in the knowledge commons literature (Frischmann et al., 2014a) and the generative-justice account of circular value flows advanced by Eglash et al. (2024). Their analyses supply important prior concepts. The present paper’s proposed contribution is not the discovery that value can circulate or that resources require governance. It is a scoped comparison of *independent circulation*, *maintenance assignment*, *post-role access*, and *actor-specific capability reproduction* in a historically evolving university hospital Commons field. The additional explanatory value of that joint account remains a hypothesis. It is possible that an ordinary shared-drive policy and a small maintenance budget would answer the relevant practical question with less complexity.

Nor should the desire for replenishment create a concealed exchange requirement. A participant’s lawful use of openly licensed material is not a promise to volunteer later. A person who declines additional work should not be penalised by rewriting the history of their contribution. Where some resources are genuinely scarce, a transparent, lawful allocation policy may consider time limits, prioritisation and reasonable support conditions, but must distinguish these from a moral claim that every beneficiary owes the Commons repayment. The legitimate maintenance problem is how to sustain the enabling conditions that have actually been undertaken, not how to recapture every benefit created outside the field.

12.7 Closure, Handover, and the Limits of Historical Preservation

A field capable of evolving also needs credible ways to contract. Not every practice should be made perpetual. Software services can become insecure or unsupported, a prototype can require disposal, staff supervision may become unavailable, and a shared social activity may end when participants no longer wish to continue. The proposed Commons must consequently be able to distinguish *pausing a service*, *closing an access route*, *handing over an accepted maintenance responsibility*, and *archiving a lawful historical record*. These actions can have different effects on future value creation. None is adequately captured by a generic project status of “inactive.”

Consider a robot that has been prototyped outside patient areas. If its creators depart and no qualified custodian accepts responsibility for battery checks, physical storage, or safe testing, a prudent response may be to end its operation or dispose of the physical device appropriately. Some non-sensitive code, drawings, and documentation may still be retained under the applicable rights and repository policies. A handover to a university laboratory might be possible where the laboratory genuinely accepts the asset and associated liabilities. Such transfer cannot be inferred from a mention of the laboratory in an issue thread. An educational activity may likewise preserve its reusable lesson materials after the in-person group dissolves, provided participants’ privacy and other legitimate interests are respected.

Preservation creates ethical and epistemic trade-offs. A rich log of past collaboration may aid attribution and reconstruction, but it may also expose volunteers’ personal information, sensitive complaints, or context that participants reasonably expected to remain private. Archiving everything forever is not necessarily a virtue. Decisions may require minimisation, restriction, deletion, aggregation, pseudonymisation where appropriate, or retention under a lawful institutional schedule. The 2024 Declaration of Helsinki articulates ethical principles for medical research involving human participants, including identifiable human material or data (World Medical Association, 2024). The Declaration of Taipei supplies more specific ethical considerations for the collection, storage, and use of identifiable health information and biological material beyond individual care (World Medical Association, 2016); the OECD Council Recommendation on Health Data Governance is an additional policy reference for responsible health-data governance, not a legal basis for a particular disclosure (OECD Council, 2016). None of these provides a general operational permission to retain or disseminate hospital information. The applicable law and institution-specific decisions must be established for each real use. The proposed platform should not invent indefinite preservation duties merely because version histories are technically easy to

create.

A bounded closure protocol might communicate, where appropriate, what is ending, what independently licensed resources remain accessible, which obligations have been discharged or transferred, whether historical materials are restricted, how public references will be updated, and what requests can still be made. Even that protocol has maintenance costs, and more elaborate documentation is not always better. The minimal sufficient response depends on the significance of the resource, credible future uses, participant expectations, safety consequences, and the continuing institution's actual capacities. A project's ending can sometimes restore personal autonomy or free scarce resources for unrelated but legitimate work.

12.8 Access and Stewardship Across Unequal Institutional Positions

Conditional access can perpetuate existing advantage if it is awarded informally only to participants with strong academic affiliations, personal relationships, or confidence in approaching institutional gatekeepers. A former student with a supportive supervisor may receive continuing access to a workshop while an equally capable unaffiliated volunteer is excluded without an intelligible explanation. Conversely, uniform access to a costly, supervised facility may be infeasible or unfair to people who have already secured limited resources for assigned activities. The design cannot eliminate these tensions by announcing openness. It needs explicit reasons for any differentiation and a means to challenge errors within the actual governing rules.

A related danger is burden displacement. A policy promising easy access may rely on unrecognised staff work to screen requests, arrange spaces, answer repeated questions, or maintain equipment. The people approving a policy and those bearing its routine costs can be different. A candidate configuration should identify these actors and solicit their perspectives before interpreting access expansion as an unqualified success. Patient and volunteer voices may be particularly important when resources or attention would otherwise be diverted from existing service obligations. An institution's ethical duties can justify stronger controls on particular activities without authorising a general denial of opportunities on the basis of social standing or academic prestige.

Governance ought also to preserve the possibility of correction. Resource inventories may be incomplete, permission language ambiguous, and maintenance responsibilities contested. Affected parties may wish to clarify mistaken attributions, object to a use, seek review of an inaccurate status, or end an association. The Commons need not establish a separate appellate bureaucracy for every concern; the competent existing institutional, professional, or legal channel may be preferable. What matters analytically is that openness, restriction, contestation and revision are treated as situated relations with costs and legitimate decision-makers, rather than as binary properties of the platform.

12.9 Comparative Stewardship Configurations and Countercases

Table 15 provides hypothetical situations for testing whether the proposed field adds explanatory or practical value over simpler arrangements. The cases cross software, engineering, education, volunteer practice, art, and distributed civic knowledge. None represents a verified university hospital programme. A favourable result requires appropriate evidence regarding access, work performed, actual maintenance, and affected people's feasible subsequent activities.

These cases help distinguish several apparent successes. A platform may accurately identify a licensed work but still fail to maintain the environment needed to reproduce its use. It may sustain public access while failing to protect a contributor's freedom to exit. It may preserve technical artifacts while erasing the invisible labour that made them usable. It may show a large audience yet have no evidence of benefit to those audiences. It may provide no unique support at all because a university repository, a maker space, or a community organisation already performs the needed role. Under the proposed design, those are different observations, not one score of Commons success.

Table 15: Hypothetical access and stewardship comparisons. Possible outcomes do not establish hospital permissions, actual effectiveness, or a universal allocation rule.

Activity	Access and maintenance question	Comparison or adverse case
Graduated student's simulation	Public code may remain usable; institution-owned compute access may expire and need a new arrangement.	Ordinary public hosting already provides sufficient continuity without alumni privileges.
Robotic prototype	Physical storage, inspections, materials and custody require accepted responsibilities.	An unused device becomes unsafe; design files remain appropriately archived while physical use stops.
Volunteer-created guide	Reusable non-sensitive content may continue, while the person's service role and added labour end.	A coordinator incorrectly treats authorship as continuing unpaid editing responsibility.
Teaching method	A licensed lesson plan can travel independently of a hosted workshop and later be adapted.	A repository records downloads but cannot establish pedagogical benefit or renewed creator capability.
Community artwork	Display and digital documentation have different consent, attribution and preservation conditions.	Participants decline broad dissemination; a smaller, time-bounded local arrangement suffices.
Open software service	Hosting, security support and user assistance have different maintenance requirements.	Widespread reuse continues while an unpaid maintainer lacks capacity; an archival release replaces live support.
External civic adaptation	Value may develop in another community with no promised return to the original field.	A demand for reciprocity would impose an unwarranted obligation on users of an open resource.

12.10 Evaluation, Rival Explanations, and the Next Institutional Question

A future empirical comparison should define at least three feasible configurations for a bounded activity: continuing with existing resources and normal institutional policy, adding a modest resource directory and named maintenance contacts, or implementing a scoped Commons interface linking access claims, stewardship undertakings and creative histories. The configurations should be evaluated on identical substantive requests where possible. Such requests might involve a former student's need for public documentation, a volunteer's refusal to keep editing a guide, a prototype requiring safe retirement, or a community group's desire to adapt a licensed teaching tool. The correct result might be continued public access, a properly scoped renewed agreement, a competent denial, a documented handover, or no additional infrastructure at all.

Measures should distinguish classification accuracy, mistaken assumption of authorisation, time to locate genuinely usable resources, quality of handover information, experienced autonomy, privacy exposure, actual steward hours, material cost, and actor-specific feasible follow-on work. Where only hypothetical cases are available, one can evaluate whether participants correctly distinguish *supported*, *excluded*, *unresolved*, and *disputed* conditions, not claim improved real-world capability. Longer-term studies would need baseline observations and follow-up periods, since a promising early resource allocation may later create an unsustainable maintenance commitment. Selection into participation, unrelated professional development, changes in external policy, and pre-existing university support must be treated as competing explanations.

The FAIR framework, knowledge commons studies, organisational learning scholarship, and existing repositories already address significant parts of stewardship and reuse (Wilkinson et al., 2016; Frischmann et al., 2014a; Argote, 2013). The specific contribution proposed here is to analyse their interfaces through temporally bounded access, accepted maintenance duties, heterogeneous burdens, and the independent trajectories of beneficiary and contributor capabilities. This claim would lose practical force if a simple status register plus existing procedures yielded equally accurate decisions and sustainable outcomes with lower cost. Nor would the present chapter's models justify inferring a social optimum from the survival of a practice. Evolutionary selection, adaptation of field rules, and resulting path dependence are developed in Chapter 13, *Evolutionary Mechanisms of Field Governance*, while the present

inquiry specifies the resource and responsibility relations on which such evolution depends.

A plausible Commons may therefore remain quite small: one reusable public resource, an accurate pointer to an existing institution's access procedure, a finite maintenance commitment, and a clear right to decline or close a collaboration. A more elaborate configuration is justifiable where needs and evidence support it. Reproduction in this sense is not the perpetual growth of an organisation. It is the responsible preservation, transformation, or discontinuation of some conditions under which distinct people may later undertake legitimate and meaningful creative work.

13 Evolutionary Mechanisms of Field Governance

This chapter develops an account of how the enabling field of a university hospital Commons can change as heterogeneous creative practices appear, interact, persist, diverge, and sometimes cease. The initial configuration considered in Chapter 5 does not determine which practices will later become important. The cooperative relations examined in Chapter 9 may support continuity without developing into formal authority, while the conditions of access, maintenance, and actor-specific generative capacity analysed in Chapter 12 can change even when the visible stock of artifacts expands. The analytical object of this chapter is therefore neither the growth of an organisation nor the optimisation of its membership. It is the historically situated interaction among practices, field infrastructures, resource conditions, and changing opportunities to create and circulate heterogeneous forms of value. Evolutionary economics, organisational learning, institutional analysis, and evolutionary governance theory provide established accounts of important components of this interaction. The proposed generative relational inquiry develops a bounded way of connecting these components to situated capabilities, partial evidence, voluntary participation, and the possibility of institutional self-revision. This is a conceptual and comparative design proposal, not an empirically established evolutionary law for hospitals.

13.1 Evolutionary Units, Temporal Scales, and Relational Status

In a genetic algorithm, an evolving population is represented by candidate encodings and transformations over those candidates. Such representations can be useful analogies for exploring variation and selection, but they cannot be carried over literally to social participants. A student, nurse, volunteer, educator, patient, or artist is not a disposable candidate solution. People have purposes and rights that do not depend on their relative productivity, and a hospital's safety obligations cannot be treated as adjustable penalties in a scalar fitness function. For the present inquiry, the comparatively appropriate units are *practices and configurations of relations*: a synthetic training exercise, a voluntary cross-disciplinary exchange, a software development branch, an accessible documentation convention, a shared workshop arrangement, or a proposal to coordinate external support. A practice can be modified, discontinued, or independently reproduced without requiring the exclusion of its practitioners from the Commons.

These units must themselves be distinguished. An *activity* is a situated occurrence, such as an educator testing a synthetic example. A *creative trajectory* comprises a partially reconstructible history of related activities and artifacts, as developed in Chapter 8. A *routine* is a historically recurring pattern of action whose reproduction may depend on tacit knowledge, people, artifacts, or expectations. An *infrastructure configuration* describes a presently supported arrangement of resources, access conditions, maintenance relationships, and interfaces. A *rule* expresses an expectation or decision within a particular normative and organisational setting. These objects may influence one another, but no single one subsumes the others. A new rule can be issued before any related practice exists; a recurrent practice may remain without a formal rule; a creative artifact can outlive the group that developed it.

Temporal scales also differ. A suggestion might be revised in an afternoon; a student's robot design may evolve over months; safe stewardship of a physical device may require years; institutional permission and resource commitments may follow separate renewal cycles. Value recognition can occur much later, or in a field unrelated to the originating project. An evolutionary account that samples only a single academic year risks confusing delayed recognition with failure, while one that records only the eventual

successful projects risks erasing abandoned experiments and invisible labour. The appropriate time horizon must therefore be chosen relative to the activity, interested parties, available records, and question under study, rather than presuming one universal cycle for Commons development.

The three-level discipline of generative relational analysis places limits on these descriptions. At the *ontological level*, no claim is needed about the ultimate substance of an institution, an evolutionary tendency, or creative value. At the *relational level*, actual habits, dependencies, resources, skills, expectations, and institutional positions may constrain or enable later activity and develop historically consequential stability. At the *manifestation level*, project notes, interviews, change logs, schedules, financial records, and observed artifacts provide incomplete and differently situated evidence about those relations. In particular, the frequency with which a platform label such as “active” appears is not a direct measure of the number of substantively viable creative practices. The field itself is not adequately measured by its server inventory or registered membership. These distinctions require careful causal humility when analysing co-development.

13.2 Variation Within Feasible and Legitimate Creative Conditions

Variation need not begin with a formal challenge to a common rule. It may occur when a participant adapts an educational method to a different learning problem, an engineer tries another non-clinical robot simulation, an artist proposes a distinct community format, or volunteers voluntarily exchange interpretations of an existing public instruction. Some variations concern a product, others a method, an audience, a relationship, or the supporting field itself. The Commons may influence whether such alternatives are discoverable and feasible through its documentation, accessible tools, communication conventions, and opportunities for limited contact. It should not require every independent exploration to enter a central proposal pipeline. The account of problem formation in Chapter 7 is relevant precisely because a question, a complaint, a suggestion, and an application for institutional action involve different participant expectations and competent recipients.

Variation is constrained, but these constraints must be distinguished from one another. A researcher may lack time or fabrication materials; a workshop may have insufficient supervision; a robot trial involving actual patient areas may be prohibited without independent institutional authorisation; a public document might carry a licence permitting modification while its embedded third-party images do not. Material feasibility, legal or institutional permission, and willingness to participate are separate conditions. The feasible-activity set in Equation (29) helps identify activities which a situated subject could meaningfully undertake under an assessed configuration. That set is not a list of actions the Commons may compel, and the associated *WithinScope* assessment is not a device for issuing permissions. The proposed evolutionary field should preserve those distinctions when deciding whether to offer a sandbox, to refer a request to an existing authority, or to refrain from facilitating an activity.

Variation can also arise without a new artifact. A contributor who previously managed every issue in a public software repository may establish a bounded response schedule, allowing further participants to coordinate without assuming indefinite availability. A community group may replace a public meeting with an accessible hybrid format. A university laboratory might accept stewardship of a device whose initial creators wish to leave. Such changes may improve one aspect of the field while imposing other costs. Conversely, apparently diverse projects may reproduce essentially identical assumptions when all draw on the same dominant professional network. A well-designed initial field should provide several viable opportunities for independent experimentation, not merely display a heterogeneous list of project titles.

Holland (1992) supplies the computational analogy of variation under a represented search environment; Nelson and Winter (1982) provide a different, socioeconomic account of routines and adaptation. Neither establishes that the proposed Commons can optimise society by sampling enough proposals. Rather, the relevant comparison asks whether limited changes to the field enlarge the range of *permitted, genuinely feasible, voluntarily chosen* creative work. Variation that cannot be implemented, cannot attract its own participants, or requires unsustainable support may remain an intellectual possibility with-

out constituting an active practice. Equally, a technically feasible practice may be declined for entirely legitimate reasons. These are different outcomes, and a field governance evaluation ought not collapse them into a single count of failed submissions.

13.3 Encounters, Learning Feedback, and Self-Altering Interfaces

An evolving Commons includes interactions between projects and the shared conditions that make interaction possible. Suppose an education researcher working with public training examples discovers that a student's robotics simulation contains a useful representation of sequential decision-making. The researcher might invite a discussion, reinterpret the simulation for educational purposes, and voluntarily contribute a new explanatory layer. The robot developer might learn from the educational interpretation or might remain uninterested. Either response is compatible with a plural Commons. A shared interface creates an occasion for such encounters; it does not establish cooperation, common goals, or reciprocal debt. The distinction developed in Equation (16) remains necessary when later observers reconstruct what happened.

Some encounters produce *enabling feedback*. A small set of people repeatedly uses an accessible template to describe physical prototype assumptions. An existing steward notices that the format reduces confusion and, with suitable permissions and resources, makes it available to other projects. A more legible interface might then make other forms of collaboration possible. This is a plausible reinforcing relation between practice and field, but even here the benefit cannot be inferred from download counts: new users may have different needs, the template may suppress essential context, and maintenance demands may offset the reduction in communication effort. *Constraining feedback* is equally possible. An easily discoverable funding route may attract more engineering proposals than a small group can review, exhausting the people who volunteered to maintain it. A reputation mechanism could concentrate attention on well-connected teams, leaving less visible social or artistic proposals without comparable opportunities for response.

A third class of feedback concerns the *interpretation of value*. A low-cost accessibility improvement can be dismissed as mundane by one professional group but later recognised as consequential by another. A robot initially valued as a transport proposal can circulate as a teaching model instead. The relevant infrastructure is not merely a broadcasting tool; it can support the formation of new relationships in which an artifact is interpreted and used differently. Chapter 10 differentiated dissemination, discovery, recognition, uptake, and benefit. The present chapter examines feedback from these external processes into later field conditions. An external partnership may make equipment accessible, whereas a rejection may clarify missing expertise or demonstrate that further pursuit is not worthwhile. Neither feedback is guaranteed, and neither must return to the originating Commons.

Organisational learning provides a well-developed comparison. Levitt and March (1988) characterise learning in terms of history-dependent routines and the encoding of experience; March (1991) analyse the tensions between exploration of uncertain possibilities and exploitation of what is already known. The present proposal adopts these insights to examine field-level interactions, while recognising that public recognition, unequal voice, and formally separate institutional jurisdictions complicate the transfer from an organisation's learning process to an open, possibly decentralised Commons. A repository history may show a change in a design without identifying whose interpretation caused it; interviewees may disagree about whether an encounter was useful. The appropriate epistemic response is to retain these alternatives in the analysis, rather than assert a complete feedback mechanism whenever a sequence of events can be drawn as a cycle.

13.4 Selective Retention, Discontinuation, and Plural Valuation

The term *selection* can misleadingly suggest that every initiative is ranked by a single objective and that only the highest-scoring activities remain. In an evolving university hospital Commons, decisions concerning retention are dispersed. Participants decide whether to continue their own work; maintainers

determine whether they can still accept an undertaking; users may choose a particular artifact over alternatives; institutions with relevant competence decide whether to authorise a use or commit resources; and external communities may discover and repurpose an output. These decisions arise under different rules and values and need not be coordinated by a central field authority. The Commons may facilitate information exchange among them, but it should not claim to collapse them into one maximised “public value” function.

For analysis, four outcomes should be kept distinct. *Repetition* describes the recurrence of a practice. *Endorsement* describes a situated actor’s favourable evaluation of a specified aspect. *Support* concerns the actual assumption of a resource, maintenance, or coordination commitment. *Institutional authorisation* concerns a decision made by someone with the relevant competence under applicable rules. A much-repeated routine may receive neither endorsement nor permission, and an activity that is authorised in one setting may not be accepted by others. Chapter 11 set out this separation in relation to external institutions; the same logic applies when the Commons field changes internally. In particular, social popularity cannot certify patient safety, the right to use third-party material, or the conditions for a real hospital deployment.

A short non-entailment makes the inferential boundary explicit. For an observed practice p in context c at time t , let $\text{Recur}_{c,t}(p)$ describe a supported claim about recurrence, $\text{Legit}_{c,t}(p)$ a separately justified normative assessment, and $\text{Maintainable}_{c,t}(p)$ an adequately evidenced, resource-specific feasibility judgment. Then:

$$\text{Recur}_{c,t}(p) \not\Rightarrow \text{Legit}_{c,t}(p) \wedge \text{Maintainable}_{c,t}(p). \quad (31)$$

Equation (31) does not define legitimacy through software metadata or reduce maintainability to a numerical threshold. It prevents an empirical frequency statement from doing the work of two independent inquiries. This is especially important where a recurrent practice relies on unpaid overtime, unrecognised supervision, or participants’ fear of displeasing supervisors. Later Chapter 14 will examine the normative, power, and institutional questions in greater depth; the immediate evolutionary point is that persistent reproduction can be produced by unequal choice conditions, not only by voluntary preference.

Retention can also mean preserving a method, a design file, a critical lesson, or a pathway for future exploration without maintaining the original activity. A robot project might close when no safe custodian is available while its properly licensed simulation and non-sensitive drawings remain available for unrelated learning. A workshop might end because it has achieved its purpose, without any failure that needs correction. An experimental practice might be paused pending review rather than permanently abandoned. These outcomes differ from preserving a functioning organisational routine and should carry different stewardship implications. The maintenance responsibilities identified by Equation (27) cannot be inferred solely from the existence of a retained record. Retention without a named capable steward may be preservation in name only.

13.5 A Partial Model of Field and Practice Co-Evolution

The initialisation relation in Equation (9) describes joint changes in the field $\mathcal{F}_{c,t}$ and the set $\Sigma_{c,t}$ of practices currently active or ready to begin. This set is the currently viable or active slice of the wider creative-trajectory population $\mathcal{T}_{c,t}$ introduced in Equation (4); trajectories can also be suspended, declined, or pursued elsewhere. Hence Σ and $\mathcal{T}$ should not be substituted without specifying the scope and observation rule. The present chapter gives this schema a more discriminating interpretation, while deliberately avoiding a deterministic transition function. Define an analytic field state $\mathfrak{X}_{c,t} = (\mathcal{F}_{c,t}, \Sigma_{c,t}, \mathcal{D}_{c,t})$, where $\mathcal{D}_{c,t}$ represents the available, permission-bounded evidence about the configuration and its recent history. $\mathcal{F}_{c,t}$ summarises the conditions under which activities may be carried out, including resources, relevant permissions, interfaces, and accepted stewardship duties. $\Sigma_{c,t}$ refers to practices rather than to a ranked population of people. The evidence component is intentionally separate from the conditions and practices about which it records claims. A missing document may affect what investigators know without implying that the underlying practice ceased to exist.

For an interval $[t, t']$, consider a *candidate transition relation*

$$\mathfrak{X}_{c,t'} \in \text{FieldEvolve}_{c,[t,t']}(\mathfrak{X}_{c,t}; \mathcal{V}_{c,[t,t']}, \mathcal{I}_{c,[t,t']}, \mathcal{M}_{c,[t,t']}, \mathcal{S}_{c,[t,t']}, \mathcal{Z}_{c,[t,t']}). \quad (32)$$

where $\mathcal{V}$ denotes documented or otherwise supportable variations in practices and configurations; $\mathcal{I}$ refers to relevant interactions among actors, artifacts, and institutions; $\mathcal{M}$ records changes in accepted maintenance and resource conditions; $\mathcal{S}$ concerns situated processes through which practices are retained, revised, interrupted, or no longer supported; and $\mathcal{Z}$ allows external shocks and constraints not adequately generated by the Commons itself. Each object is temporally and contextually scoped. Equation (32) is a set-valued relation over candidate continuations rather than an algorithm known to select the best outcome. Its components are explanatory categories, not fully observed numerical input vectors, and its use does not imply that a retrospective researcher knows the complete choice set available to historical participants.

The addition of $\mathcal{D}$ makes an epistemic distinction that a field-design study can otherwise obscure. We might observe a new public document, a discontinued repository, a service event, or a grant decision, and then describe what changed. But a document published at t' can refer to an activity that occurred well before t ; a practice may become newly visible without newly arising; and a decision can be recorded without being implemented. At the level of relational reality, the material and social relations capable of influencing subsequent work are the object of explanation. At the manifestation level, only their heterogeneous evidential traces are available to inquiry. Ontologically, the paper does not identify the system state with either a simulation's representation or the set of records accessible to its authors. This separation also protects against treating computer-generated causal paths as certified histories.

A useful derived question concerns a specific actor's feasible future work. Let $\text{Cap}_{s,c,t}(\mathcal{F})$ retain the situated meaning given in Equation (29). The transitions in Equation (32) do not generally entail

$$\mathfrak{X}_{c,t} \rightsquigarrow \mathfrak{X}_{c,t'} \not\Rightarrow \text{Cap}_{s,c,t'}(\mathcal{F}_{c,t'}) \supseteq \text{Cap}_{s,c,t}(\mathcal{F}_{c,t}), \quad t' > t. \quad (33)$$

Equation (33) expresses the absence of a general entailment from a field transition to an inclusion relation between actor-specific feasible sets. The arrow denotes a described change, not a proven causal map or an authorisation transition. An institution may gain a better software repository while losing the personnel needed to interpret old documentation, or create access for one group while making an alternative more difficult for another. The relevant activity domains and feasible-set membership conditions must be aligned before any actor-specific comparison is attempted. Neither more retained artifacts nor more published projects proves improved generative capability.

These relations clarify what an eventual simulation could investigate. A computational model might sample different initial configurations, bounded maintenance budgets, heterogeneous motivations, visibility mechanisms, and external shocks. It could then examine the frequency with which certain practices remain feasible under *specified assumptions*. Such exercises may expose dependence on assumptions or plausible counterexamples; they cannot independently validate the chosen representation of value, infer individual consent, declare institutional permission, or select an ethically optimal population. Any connection between simulated dynamics and observed practice would require separate empirical validation and substantial care in case construction.

13.6 Visibility, Path Dependence, and Disappearing Alternatives

Evolutionary processes may favour what the field makes easily visible rather than what would have generated the most important benefits under another configuration. A repository that privileges code contributions can record pull requests more readily than it records a volunteer's practical insight, an educator's tacit facilitation, or a patient's decision not to participate. A grant-matching interface organised around technology prototypes may create repeated links to engineering institutions while offering few

routes to disability advocacy, community arts, or low-cost procedural improvements. These patterns do not simply reflect participants' intrinsic preferences. The way a field describes and routes a proposed contribution may alter which interactions become likely and which become observable.

Positive feedback can deepen the imbalance. A well-connected initiative receives an early endorsement, attracts resources, produces more visible outputs, and becomes more attractive to subsequent partners. Another practice, initially less legible to professional reviewers, receives little feedback and gradually loses access to willing collaborators. Arthur (1989) provides a classic model in which increasing returns and contingent early events can yield technological lock-in; the university hospital Commons is not shown to follow that particular model. Rather, the work supplies a disciplined hypothesis: under specified access and recognition conditions, initial advantages may be amplified without demonstrating that the selected path was superior to the alternatives. Chapter 15 will consider the fuller historical implications of such dependencies, including institutional memory and adaptation across generations of participants.

Negative feedback has equally diverse interpretations. A safety concern may appropriately end a proposed physical-device test; a budget shortage may oblige a project to reduce scope; an unmanageable queue may signal that the field has promised more support than its maintainers can deliver. But repeated rejection can also arise from prejudicial criteria, language barriers, unfamiliarity with emerging disciplines, or the hidden expectation that a proposer has a prestigious affiliation. Refusal by a competent authority and unjust exclusion are different phenomena. A useful evolutionary study should compare the reasons for reduced support, the information available to those deciding, the experiences of affected participants, and alternative pathways that may have been available without the Commons. Not every discontinued initiative is lost public value, and not every continued initiative is evidence of an effective selection system.

The possibility of *unobserved alternatives* is especially important. A volunteer who does not have the time to submit a proposal, a patient who does not wish to disclose personal experience, and a staff member who anticipates additional unpaid work may never enter the project's recorded candidate pool. No archival method can simply enumerate all unrealised ideas. Sensitivity analysis and deliberate attention to nonparticipation, unavailable resources, withdrawn proposals, and accounts from those who do not benefit from the platform are therefore more credible than claims to have captured a complete innovation landscape. A narrow project catalogue may still be justified if the Commons honestly states its scope and avoids presenting visible applications as an unbiased sample of social needs.

13.7 Shocks, Bounded Learning, and Stewardship Thresholds

A Commons may evolve through events that its own design did not produce: institutional reorganisation, a change in research funding, a software security incident, the loss of a fabrication room, a change in volunteers' available time, or a new public need. The effects of such events depend on the existing field. A small open-knowledge group may continue with public materials after a change of institutional affiliation. A physical prototype team may cease development because no qualified person remains to store or supervise the device. A teaching network may persist by moving discussions to an already available public service. Adaptation is not adequately measured by organisational survival alone: survival through inappropriate access, undocumented duties, or dependence on an exhausted maintainer may undermine the very capacities the Commons was intended to support.

A practical field therefore needs bounded ways to notice and respond to changing conditions. These might include an intelligible notice that a resource is no longer supported, a named custodian for a physical artifact, an optional request for review of an access decision, and an ordinary means to mark a document obsolete. Not all practices require a dedicated dashboard or comprehensive audit trail. Sometimes an existing laboratory procedure or volunteer coordinator is both more reliable and less costly. Where data are sensitive or activities may affect patients, the governing professional and institutional controls remain operative regardless of how the Commons presents itself. The right to close an unsafe or unmaintainable interface is part of responsible evolution, not necessarily its failure.

Table 16: Hypothetical field-evolution counterexamples. These are proposed comparisons, not empirical results or permissions to conduct hospital activities.

Practice and apparent evolution	Possible relational mechanism	Alternative account or decisive constraint
Education material revised by several volunteers	Later educators reuse a clearer example; experience changes the shared template.	A public university course already supplied an equivalent, better-maintained resource.
Robot simulation attracts new collaborators	Shared synthetic tests support independent branches and reciprocal learning.	Visibility rises without a capable custodian, and the hardware is not safe or authorised for clinical use.
Volunteer feedback routine becomes recurrent	A low-burden communication convention reduces misunderstanding.	Repetition reflects staff pressure or uncompensated coordination work rather than autonomous adoption.
Community artwork circulates externally	New audiences offer interpretations and initiate independent continuations.	Popularity metrics obscure creator preferences, attribution disputes, or legitimate withdrawal.
Open-source tool gains external adoption	New users identify defects and finance agreed maintenance work.	Uptake increases issue and security burdens without a viable steward or material return.
Less visible accessibility practice ends	Weak dissemination routes prevent access to partners who might support it.	Termination was a voluntary choice or reflected a valid safety restriction; loss is not automatically unjust.
Existing laboratory workflow persists	Familiar routines reduce the need for additional Commons infrastructure.	A new platform adds administrative work but no additional feasible creative activities.

Resources place hard limits on experimentation. An initiative that appears free because it relies on a student's or volunteer's time may displace professional, educational, or caring activities that person has independent reasons to prioritise. Chapter 12 expressed burden through a non-fungible vector, rather than assuming that labour, money, risk, and lost opportunity can always be substituted for one another. For evolutionary field governance, a relevant selection question is whether a modified practice can continue with a willing and competent steward under clearly bounded obligations. This is different from asking whether enough enthusiasm exists to make it continue temporarily. A resource that fails this test may be responsibly archived, transferred through a valid arrangement, scaled down, or closed.

Learning is also fallible. A Commons may reproduce mistaken interpretations of previous outcomes because it remembers successful demonstrations but not abandoned attempts, or because evaluators treat earlier publicity as evidence of later success. Levitt and March (1988) note the historical and routine-based character of organisational learning, including limitations in how experience is interpreted. The proposed approach accordingly includes opportunities to correct the record, differentiate asserted benefits from evaluated outcomes, and revisit the relevant resource conditions. Yet more intensive monitoring can itself introduce burdens and privacy concerns. The choice is not between perfect institutional memory and none, but among sufficient and proportionate ways of learning under actual constraints.

13.8 Illustrative Evolutionary Configurations and Counterexamples

Table 16 provides hypothetical cases to test whether variation, interaction, and retention are being interpreted rather than merely labelled. The situations are not reports of observed university hospital initiatives. Each case contrasts an initially plausible story of evolution with a competing explanation or failure condition. The table covers material and non-material work because the Commons is not defined solely by research publications, digital files, or clinical service projects.

The same kind of evidence need not support every row. A robot's technical development may be documented by executable code and safe non-clinical tests; a teaching method may require evidence concerning learner understanding; a social practice may depend on interviews, protected participant accounts, and contextual observation. Public recognition of an artwork is not the same as an assessment of hospital use. A comparison that assigns a universal outcome score to these activities would conceal their different purposes and authority conditions. A better protocol specifies for each case the activ-

ity, relevant actors, intended beneficiaries, burden bearers, time horizon, comparison arrangement, and admissible forms of evidence.

These hypothetical cases also resist a one-directional developmental narrative. Some projects may remain autonomous, some may develop collaborations outside the Commons, some may gain institutionally recognised responsibilities, and some may end without a successor. A modest, well-maintained public resource can sometimes enable more future work than an elaborate collaboration programme. The field approach would have explanatory value only if it can identify these differences and predict or reconstruct relevant constraints better than ordinary project descriptions, professional judgement, or existing institutional records. It is not supported merely because every observed outcome can retrospectively be called a selection event.

13.9 Empirical Discrimination, Institutional Alternatives, and Theoretical Scope

A credible evaluation should ask whether the proposed evolutionary field account adds information to existing approaches to organisational learning and institutional adaptation. One feasible study design would begin with public or properly authorised historical materials and hypothetical case dossiers, while keeping real clinical and identifiable participant information outside the exploratory dataset. Independent assessors could receive otherwise comparable descriptions through (a) ordinary project histories, (b) concise registers of resources, decisions, and maintenance responsibilities, and (c) the proposed joint field-and-practice representation. Each assessor would judge bounded questions: Was the practice substantively altered? Did a valid access or support relation change? Which actor assumed maintenance? What evidence supports an alleged feedback effect? What alternatives remained feasible? Did the new interface actually add a capability absent from the pre-existing system? An answer of “insufficient evidence” should be valid, not treated as an error by default.

The assessment should compare error types, the burdens of preparing and interpreting records, disagreements among assessors, and the sensitivity of conclusions to missing information. The important failure modes include inferring authorisation from popularity, equating adoption with beneficial outcome, treating cessation as failure, presuming continued willingness from historical participation, and mistaking increased platform activity for expanded feasible work. A separate practical study, only if independently justified and duly approved where necessary, could examine whether particular infrastructure changes improve selected participants’ feasible creative activities over a defensible comparison period. The conceptual field model does not supply such approval; no study of human participants or clinical activity is claimed here.

A simple rival explanation may well suffice. An educational department may already keep usable teaching materials, an engineering laboratory may already maintain safe robot development facilities, and public repositories may already support version histories and sharing. A Commons-specific field representation would lack demonstrable added value if those simpler arrangements supported the same legitimate work, avoided comparable mistakes, and cost less to maintain. Conversely, a useful additional explanation might arise if a field change made an independently initiated practice feasible across previously disconnected institutions, or if a conventional project register systematically missed maintenance liabilities or later creative continuations. Both propositions require evidence rather than confidence in the elegance of the vocabulary.

Theoretical inheritance must remain explicit. Evolutionary economics already analyses routines, competition, and adaptation (Nelson and Winter, 1982); organisational learning treats the interpretation and retention of historical experience (Levitt and March, 1988; March, 1991); institutional diversity and knowledge commons research analyse different governance arrangements and resources (Ostrom, 2005; Frischmann et al., 2014a); and evolutionary governance theory already studies the co-development of actors, institutions, and knowledge (van Assche et al., 2014). The present generative relational proposal is not the original discovery of variation, feedback, lock-in, or institutional co-evolution. Its candidate contribution is a particular *joint analytical discipline*: keeping actor-specific creative feasibility, the incomplete history of practices, rights and permissions, distributed value recognition, and non-fungible

stewardship conditions distinct while examining how each can alter the next field state. Whether the joint discipline affords incrementally better interpretation or design remains open to the comparisons described here.

Finally, field governance should not be mistaken for an unrestricted mandate to control all practices that arise around a hospital. A Commons may support a conversational convention without determining employee duties; retain a public learning resource without acquiring rights over its authors; or document a proposal without authorising a physical intervention. Evolutionary changes in a field therefore interact with, but do not supersede, the normative and institutional arrangements that give specific decisions their authority. The next chapter, *Power Asymmetry, Normative Legitimacy, and Institutional Boundaries*, examines those arrangements as a primary object. Chapter 15 returns to the longer historical processes through which the field's pathways, representations, and institutional dependencies become difficult to change. The present chapter's more limited contribution is to specify the candidate mechanisms that connect creative practice, shared infrastructure, selective continuity, and the continually revisable conditions of future work.

14 Power Asymmetry, Normative Legitimacy, and Institutional Boundaries

The evolutionary field described in Chapter 13 can preserve creative practices and revise enabling infrastructures, but its capacity to evolve does not by itself establish the justice of the arrangements that persist. An influential researcher may attract technical support while a patient's account receives little attention; a volunteer coordination practice may persist because nobody feels able to decline; or a frequently reused software artifact may conceal maintenance performed by persons without an agreed support commitment. This chapter investigates how these asymmetries arise and interact with the Commons's proposed opportunities for expression, collaboration, dissemination, recognition, and resource reproduction. Its objective is to specify the boundaries of permissible field governance and the grounds on which a recurrent practice, access decision, or institutional claim may be contested. The method combines relational analysis with existing theories of participation, epistemic injustice, public accountability, and professional ethics, followed by bounded hypothetical comparisons. The discussion concerns an internationally applicable institutional type and proposes neither a hospital-specific code nor a substitute for competent legal, ethical, or clinical decision-making.

14.1 Power as a Relational Condition of Generative Opportunity

Power is not limited to issuing commands. It can be exercised by controlling the conditions under which another person may act, how an action is interpreted, and whether an interpretation reaches an audience with the capacity to respond. A hospital employee may have authorised responsibility for selecting a training method, a principal investigator may control laboratory access, a student may possess specialised programming skills, and a patient may know a burden that has not appeared in institutional documentation. Each may be able to influence some outcomes while lacking control over others. The same subject can occupy a comparatively strong position in one relation and a weak position in another. It would therefore be misleading to rank individuals once and for all by organisational seniority or by an undifferentiated amount of power.

For the generative relational inquiry, relevant asymmetries are situated and activity-specific. One person may control the physical environment, another access to equipment, another the meaning assigned to a complaint, and a fourth the path by which a possible invention reaches an outside reviewer. Some differences are warranted by professional training, accountability, and patient protection. Others may reflect historically concentrated resources, conventions of credibility, unequal available time, inaccessible communication formats, or dependence on future references and recommendations. The analytic task is not to eliminate every asymmetry. It is to distinguish an asymmetry appropriate to the activity and

its responsibilities from one that unjustifiably prevents a person from exercising a legitimate capability, seeking review, or leaving an arrangement.

The three generative relational levels are required here. At the *ontological level*, the inquiry suspends any final claim that power is a substance possessed by an individual or an essence of an institution. At the level of *relational reality*, access conditions, dependency, hierarchy, professional competence, material scarcity, and repeated decisions can become historically stable and causally consequential even when nobody designed them as a unified mechanism. At the *manifestation level*, observed decisions, platform metrics, interviews, schedules, permission notices, and incomplete records present only selected evidence of those relations. A formal title does not disclose every influence a person has; equally, an apparently open interface does not prove that everybody can safely or meaningfully use it. These distinctions extend the three-level analysis introduced in Chapter 2 without treating any theory of ultimate social ontology as settled.

An educator, for example, may have full professional standing to design a synthetic training experiment while lacking the permission needed to recruit hospital staff. A volunteer may be able to identify an accessibility problem while lacking time or confidence to challenge an existing procedure. A skilled student may build a robot simulator without having the institutional resources to test physical hardware. The Commons cannot remedy all such constraints, and some must be maintained. It can nevertheless evaluate whether a proposed interface expands feasible, legitimate opportunities relative to the ordinary arrangements examined in Chapter 6. A larger number of available buttons or formally permitted submissions is not sufficient evidence of that expansion.

14.2 Visibility, Credibility, and the Formation of Recognised Problems

The mechanisms of problem expression in Chapter 7 and external circulation in Chapter 10 depend on conditions of attention and interpretation. Those conditions distribute influence long before any explicit vote or funding decision. A proposal written in familiar disciplinary language may be readily understood by an academic committee; a service difficulty narrated by a patient or volunteer may not fit a predefined category; and an informal tool may receive little visibility because its author cannot produce a polished demonstration. A Commons might amplify these inequalities by using endorsements, popularity counts, or prior institutional affiliations to rank contributions. It could then appear to discover value while largely reproducing the credibility hierarchy present at its outset.

Fricker (2007) distinguishes testimonial and hermeneutical forms of epistemic injustice. Her account supports asking whether certain speakers receive reduced credibility because of prejudice and whether shared interpretive resources inadequately convey a person's experience. The present paper does not claim that every unequal evaluation constitutes epistemic injustice. Professional criticism may be justified by evidence, methods, responsibility, or the risks of a proposed use. The narrower question is whether a difference in the *opportunity to articulate, explain, receive a reasoned response, and challenge an interpretation* is traceable to an avoidable relational disadvantage rather than to a justified distinction in competence or evidence.

A hospital Commons might therefore permit more than one way of making an issue intelligible: a short plain-language description, an accessible document, a code demonstration, a non-identifying drawing, or an appropriately protected conversation. These are *possible enabling alternatives*, not a requirement to publish intimate experiences or to transform every concern into an innovation pitch. The distinction between a safety complaint and an ordinary creative proposal remains crucial. A time-sensitive concern about patient care belongs with a competent safeguarding or reporting mechanism, not in a public issue tracker. A person may request assistance in finding that mechanism without giving the Commons authority to adjudicate clinical facts or disclose protected details.

Evidence that an issue is noticed should also be separated from evidence that the underlying claim is correct. A robot proposal may receive broad attention because its demonstration is compelling while an education improvement receives almost none. A patient's account may require careful investigation without being treated either as infallible or as presumptively untrustworthy. The field's task is to preserve

appropriate access to competent evaluation and, when practicable, proportionate feedback about the disposition of a concern. The authorial proposal is that epistemic opportunities should be assessed alongside resource opportunities, because access to materials without a path for making an independently formed concern intelligible can leave the person's effective generative capability unchanged. This is a hypothesis to be compared with existing advocacy, research supervision, and incident-reporting arrangements, rather than a demonstrated superiority of Commons platforms.

14.3 Participation, Autonomy, and Unequal Exit Conditions

Chapter 3 distinguished occupational duties, agreed volunteer tasks, independent research, and optional Commons contributions. The distinction has normative consequences. When an organisation invites volunteers to perform extra research, digital documentation, project administration, or artefact maintenance, agreement to the original service role cannot be treated as agreement to the additional task. The same holds for students concerned about assessments, researchers dependent on a supervisor, employees subject to managerial evaluation, and patients concerned that refusing an invitation could affect care. Formal statements of voluntariness may be inadequate where the person has reason to anticipate adverse consequences from refusal.

The International Labour Organization distinguishes unpaid, non-compulsory volunteer work from activities required by education, law, or another condition (International Labour Organization, 2016). This statistical classification is useful for preserving the distinction between voluntary work and other forms of unpaid activity, though it does not determine every legal entitlement or ethical duty in every country. Clary et al. (1998) also show that the functions served by volunteer participation are diverse. In the present design, the practical implication is not that a field administrator should optimise each person's motivation. It is that the Commons should avoid assuming ongoing willingness, should state the scope and expected burden of any new undertaking intelligibly, and should allow an appropriate refusal or exit without converting it into a negative performance signal.

Refusal and exit are not identical. A student can decline to collaborate on a robot project while continuing an unrelated educational activity; a volunteer can discontinue an optional Commons documentation task while fulfilling an independently agreed service role; a patient can decline participation in a proposed study while remaining entitled to appropriate care. Conversely, professional employment obligations or an already assumed and legally valid safety responsibility are not annulled by labelling a task a Commons activity. Access rights after leaving are also resource- and purpose-specific, as developed in Chapter 12. A project account's termination cannot erase a person's pre-existing rights, but neither does a history of contribution create indefinite entitlement to clinical systems, shared machinery, or protected records.

An institution may reasonably require handover of work that the participant has knowingly undertaken, subject to the applicable agreement and professional responsibilities. Yet a responsibility cannot be indefinitely enlarged by an informal expectation that the contributor will always answer questions, fix software, or train successors. A feasible field should make it possible to distinguish a freely offered future contribution from a continuing duty and to specify who will address security or safety issues after the original contributor withdraws. Where no competent steward is available, archiving or withdrawing a resource can be more appropriate than demanding uncompensated continuity.

14.4 Professional Expertise, Institutional Competence, and Normative Authority

The Commons accommodates different forms of competence without treating them as interchangeable. A patient may be authoritative about their own experience, an educator about a specialised teaching method, a clinician about an appropriately defined clinical judgement, and a technical reviewer about a robot's mechanical design within the reviewer's expertise. These forms of knowledge can support exchange but do not confer each other's institutional permissions. Likewise, an authorised institutional decision does not make an empirical claim true merely because it has been formally adopted. Power analysis needs

Table 17: Types of normative and institutional reference relevant to a proposed Commons. This comparative classification does not establish legal validity for a particular jurisdiction or institution.

Source or decision type	Potential function in the analysis	Inference that remains unwarranted
Ethical declaration or international professional guidance	Articulates principles and safeguards for relevant kinds of activity.	A professional declaration alone supplies every domestic legal permission.
Applicable legislation or binding regulation	Establishes relevant legal duties, restrictions, or authorisations when properly identified and interpreted.	A legal requirement in one country automatically governs another.
Competent institutional policy or decision	Determines an activity-specific institutional permission, constraint, or responsibility within its authority.	Approval of one activity settles the scientific quality or broader rights of the artefact.
Informed participation agreement	Records a situated choice about the specified participation on appropriate terms.	Consent to one task extends to unrelated tasks, future research, or publication.
Commons procedural convention	Coordinates voluntary creative activity and resource-sharing within its actual remit.	Historical custom or an internal platform rule confers hospital or professional powers.

to preserve these divisions even when collaborators experience their work as one continuous creative trajectory.

The recognition decisions analysed in Chapter 11 are specific to receiving institutions, purposes, eligibility conditions, and available resources. A research committee may consider a scholarly project within its remit; a university may decide whether to supply workshop access; and a hospital may determine whether a proposed service procedure meets its clinical or operational requirements. Approval for one purpose does not automatically authorise another. Professional competence to design an educational simulation does not itself permit observing patients; a successful funding decision does not permit clinical deployment; and a published code licence does not establish permission to collect clinical data. These distinctions continue the non-entailment analysis of Chapter 9 rather than creating a new Commons-wide source of authority.

Normative sources themselves differ in *subject matter and authority*. UNESCO's 2005 *Universal Declaration on Bioethics and Human Rights* articulates broad principles of dignity, autonomy, privacy, equality, and vulnerability (UNESCO, 2005). The World Medical Association's 2024 *Declaration of Helsinki* is specifically an ethical declaration for medical research involving human participants, including identifiable human material or data (World Medical Association, 2024). The CIOMS–WHO 2016 guidelines address health-related research involving humans; their Guideline 10 discusses modifications and waivers of research consent under ethics-committee review, not a generic dispensation to reuse data or to conduct operational activities (Council for International Organizations of Medical Sciences, 2016). For identifiable health databases and biobanks used beyond individual care, the WMA *Declaration of Taipei* provides a separate, more specifically scoped ethical reference (World Medical Association, 2016). The WHO *Patient Safety Rights Charter* concerns patients' rights in safe care and is published as normative guidance (World Health Organization, 2024). These instruments inform different questions; neither their existence nor citation to them itself confers hospital privileges, makes a particular data use lawful, or determines whether a non-research service-improvement exercise qualifies as research.

For any prospective Commons activity, a responsible decision would first identify the *activity and information type*: public or synthetic design exploration, internal service feedback, health-related human-participant research, secondary use of identifiable health material or data, clinical operation, or another category with its own requirements. Research consent, a duly approved research-consent waiver, an applicable legal basis for processing data, the rights to reuse creative work, and a competent institution's approval for a particular operation are distinct matters. Their necessity and sufficiency cannot be inferred from a diagram of Commons relationships; they must be assessed under the governing law, professional obligations, and institutional procedures in the particular context. This is a proposed rule for analytical separation, not an assertion that every category requires the same review process.

The table makes clear why a minimal Commons constitution is not a comprehensive hospital code.

It should describe the limits of its own operations, ensure that persons can identify the competent route for matters outside those limits, and avoid claiming that an attractive procedural design has displaced established clinical governance. A proposed rule may be refined through cooperative practice only insofar as the competent authority and affected persons have the appropriate scope to revise it. Some protected matters call for independent decision-making, not a popular vote within the Commons.

Selection environments and unequal standing. The mechanisms governing which practices become visible are themselves objects of normative scrutiny. Suppose a technically sophisticated robotics project receives repeated invitations to present, while a volunteer's oral account of wayfinding difficulties is shared only within an informal conversation. Differences in documentation and exposure do not establish that the first practice is more valuable. The proper responses may also differ: the robot may require no access to clinical premises, while the wayfinding concern may belong in a competent service channel and need not become a public Commons artifact. A comparison of recognition should ask who was offered an appropriate opportunity to be heard, what risks came with disclosure, which standards each recipient was entitled to apply, and who bore the labour of making a claim intelligible. Equalising public visibility irrespective of consent would itself be an exercise of power. The design question is consequently how to maintain legitimate, proportionate opportunities for different kinds of expression without compelling uniform participation or authorising a Commons to overrule existing professional responsibilities.

14.5 Participation in Rule Revision and the Limits of Majority Recognition

For an evolutionary field, open revision is important because initial designers cannot know all future practices or burdens. Ostrom (1990) provides an established basis for analysing collective-choice arrangements in resource governance; Arnstein (1969) shows that a nominal invitation to participate can conceal considerable variation in actual influence. These insights do not entail that every hospital rule should be determined by a Commons majority. A patient-safety constraint, for example, cannot be suspended because most project contributors favour rapid implementation. Similarly, the majority of users of a repository cannot unilaterally appropriate a contributor's independent rights. The relevant question is which people can legitimately change which rules, through what procedures, with whose interests at stake, and subject to which external constraints.

A narrow creative-work convention, such as the format for proposing improvements to a public, non-sensitive educational tool, may be reasonably changed by its active collaborators after notice to those who rely on it. The rules determining access to an institutional workshop may require the decision of an authorised resource custodian. A hospital service procedure may require review by those responsible for patient safety and operations. Proposed research involving persons may call for further independent review. The fact that an issue originated within a Commons does not give the Commons permission to substitute for any of these decisions. Participation in deliberation, expertise to advise, competence to decide, and consent to be personally involved are distinct relations.

There is nevertheless room to design the *conditions of contestation*. For example, a participant might be able to ask for a decision's stated scope, submit a correction to an inaccurate contribution record, request a review by the actual resource custodian, or decline the circulation of nonpublic personal information. Such routes need not be realised as new committees. Existing patient advocacy offices, research supervision arrangements, accessibility services, ethics committees, and ordinary complaint systems may already fulfil them. A parallel Commons board may be costly, create confusion about who decides, or unintentionally divert a serious concern from the channel equipped to address it.

The initial field should therefore provide intelligible boundaries and referral information, a proportionate way to question its own resource decisions, and a method for recording revisions that matter to people who rely on the infrastructure. It should also allow dissenting reasons to remain visible where disclosure is lawful and consented to, even if a proposed change is not adopted. Dissent is not evidence of failure by definition. It may identify overlooked burdens, competing purposes, or limits in the field's language for describing value. Preserving the possibility of dissent is analytically different from requiring

every person to engage in collective governance.

14.6 Maintenance Labour, Recognition, and Distributive Asymmetry

The circulation infrastructure developed in Chapters 10 and 11 can widen attention and resource opportunities, yet the benefits and burdens of visibility need not coincide. A student may receive academic recognition for a demonstration while a volunteer performs repeated tests without an agreed role. A repository may gain users while the original author is expected to repair defects indefinitely. A high-profile public artwork may gain attention for an institution while the creator's stated limits on dissemination are ignored. More successful circulation can sometimes increase the work needed to respond to requests, protect data, translate explanations, train newcomers, and maintain physical or digital resources.

Chapter 12 represented stewardship as a bounded undertaking rather than an inexhaustible moral obligation and considered burdens as dimensions that need not be reducible to one monetary scalar. That analysis permits a stronger governance test: who can refuse a proposed maintenance role, who controls the resources needed to fulfil it, and who can revise or terminate an arrangement once it becomes unsustainable? A Commons may count a robot as a continuing success because its development pages remain active even while the people responsible for its physical safety have no allocated time. A different project may be removed from a public catalogue after a contributor's exit, while its underlying knowledge continues to help others through properly licensed reuse. Neither recorded activity nor institutional publicity gives a complete account of the distribution of generative gains and losses.

The design should distinguish the authority to recognise a contribution from the responsibility to remunerate work when payment or employment protections are applicable. Public attribution, credentials, repository badges, or research acknowledgements do not necessarily substitute for compensation, contractual clarity, or professional staffing. Whether a particular activity is employment, training, volunteering, licensed independent work, or research must be analysed under the relevant rules and actual relationship. Nor should the Commons make continued resource access contingent upon providing uncompensated services unless that condition is independently justified, transparently agreed, and lawful for the relevant resource and relationship. The possibility of unconditional access to public knowledge may be part of the field's own public purpose.

A practical comparison may involve two configurations with identical numbers of published artefacts. In the first, work is undertaken by contributors who clearly understand and accept bounded tasks, while competent custodians maintain resources with allocated support. In the second, informal pressure and lack of alternative routes sustain unpaid work performed by persons concerned about their institutional standing. Aggregate output statistics will not reveal the difference. Relevant evidence includes activity-specific agreements, maintenance time, freedom to withdraw, complaints about workload, and the availability of alternative support arrangements. Such inquiry has to minimise intrusion: extensive individual monitoring may itself intensify institutional power and deter creative exploration.

14.7 Scoped Boundary Review for Field Decisions

The foregoing distinctions suggest a limited analytical interface for evaluating a proposed field change, rather than an autonomous legal or ethical certification system. Existing records are already available for particular purposes: Chapter 9 introduced a cooperative relation claim, Chapter 11 defined a receiving institution's scoped support decision, and Chapter 12 considered bounded stewardship and access. A boundary review should read those objects without assuming that one proves the others. For a proposed activity or interface change p , we may describe the *review question* by

$$\text{BoundaryReview}_{c,t}(p) = \langle p, \mathcal{A}_p, \mathcal{N}_p, \mathcal{E}_p, \mathcal{B}_p, \mathcal{Q}_p \rangle, \quad (34)$$

where c identifies the institutionally relevant context, t is the review time, $\mathcal{A}_p$ is the set of actor roles and proposed participation relations, $\mathcal{N}_p$ is a list of normative questions and *claimed* decision competences requiring verification, $\mathcal{E}_p$ comprises admissible and possibly incomplete evidence, $\mathcal{B}_p$ concerns burdens

and maintenance responsibilities, and $\mathcal{Q}_p$ lists unresolved issues, protected information limits, and available forms of recourse. Equation (34) describes the *structure of an inquiry*, not a favourable decision, a normative score, or a certificate of permission. A party may be named by role where recording identity would be unnecessary or improper; a protected concern may instead be referred through an existing competent channel and omitted from the Commons-accessible record.

A boundary review is therefore partial, and its fields are not commensurable inputs into a universal objective function. A well-supported claim of educational benefit cannot compensate for the absence of permission to access a patient record. A participant's agreement to publish a design need not entail willingness to maintain the design. A proposal's popularity cannot settle a dispute over ownership. In schematic terms, the following *non-entailments* make explicit the inferential discipline applied throughout the paper:

$$\begin{aligned} \text{Recurrent}(p) &\not\Rightarrow \text{Legitimate}(p), \\ \text{Recognised}(p) &\not\Rightarrow \text{Authorised}(p), \\ \text{Consented}(a, p_1) &\not\Rightarrow \text{Consented}(a, p_2), \\ \text{Visible}(a, p) &\not\Rightarrow \text{FreeToExit}(a, p). \end{aligned} \tag{35}$$

Here the predicates name research questions scoped to the relevant actor, activity, time, and governing institution. The right-hand claims are not derived by a Commons representation system; they require independent reasons and, where applicable, competent decisions. Equation (35) is a set of restrictions on interpretation rather than an empirical theorem about the frequency of institutional misconduct.

The practical value of the proposed review is conditional. For a public code collaboration involving no restricted resources, an ordinary repository's permission settings, licence notice, and clear maintainer expectations may be sufficient. For a robot proposed for physical operation in a clinical environment, competent engineering, safety, and hospital approvals may be decisive. A patient complaint should not be converted into a public project specification. If the proposed review merely duplicates these existing distinctions with more forms and delay, it lacks incremental design value. Its possible benefit is to make preventable cross-domain confusion more readily identifiable where several kinds of collaboration and resource use intersect.

14.8 Comparative Countercases of Power and Normative Misrecognition

The cases in Table 18 are hypothetical boundary tests. They cover situations in which apparently favourable indicators could disguise dependency, unjustified authority transfer, or a misallocation of maintenance burdens. Each countercase includes a simpler institutional alternative because the Commons should not treat the establishment of an additional governance apparatus as evidence of ethical improvement. These are not reports of hospital practice, allegations about any named person, or conclusions regarding national law.

These cases reveal why a single popularity or contribution measure cannot substitute for a relational inquiry. A successful project may involve a fair distribution of knowledge and resources, but the same visible output may arise alongside unequal bargaining conditions. A participant's silence may reflect assent, lack of interest, fatigue, a practical need for privacy, or perceived inability to refuse. The Commons cannot infer a person's wishes from inactivity alone. Nor should it require continuous public disclosures in order to resolve that ambiguity. Where allegations concern wrongdoing or sensitive care, the appropriate response may be protective referral and limited retention of personal information, not further platform circulation.

The scope of correction must also be kept proportionate. A mistaken project attribution may be fixed by amending a repository record; a workshop safety question may require immediate action by a qualified responsible person; an employment disagreement may require a separate institutional or statutory process. A formal hearing for every minor editorial disagreement could deter participation and overwhelm a small Commons. An entirely informal process, however, may make it impossible for a dependent participant to challenge decisions. The analytical comparison is therefore between routes that are *sufficient for the kind of dispute at issue*, not between maximum procedural complexity and absence of governance.

Table 18: Hypothetical asymmetry countercases and existing-institution alternatives; not observed outcomes or authorisations.

Apparent contribution or successful routine	Relational question about power and legitimacy	Possible simpler route or decisive limit
Volunteers repeatedly prepare extra reports	Is apparent willingness shaped by pressure, fear of disappointing supervisors, or lack of a supported alternative?	Clarify original duties and use ordinary volunteer coordination; do not impose extra Commons work.
Robot prototype attracts prestigious partners	Do publicity and research funding conceal missing permission for physical access, protected data, or real-world testing?	Use competent engineering and institutional safety review before any operational transition.
Student's code gains public adoption	Are maintenance and security demands being assigned without a defined or accepted responsibility?	Limit support, archive a release, or arrange a properly resourced maintainer.
Patient expresses disagreement with a proposed redesign	Is lived experience discounted or made publicly visible against the person's wishes?	Preserve protected patient-feedback and advocacy channels; assess competence-specific evidence separately.
Senior researcher receives credit for a collaborative teaching resource	Are contributions by junior and non-academic participants misattributed or omitted?	Correct attribution and use existing research-integrity or supervisory routes where appropriate.
Community artwork receives strong institutional publicity	Does circulation disregard creator preferences, image permissions, or agreed distribution limits?	Review the specific use and withdraw unauthorised dissemination when required.
Independent public-data study proceeds without Commons membership	Is an added field-review procedure necessary for work already legitimate and adequately supported?	Allow independent work to continue under ordinary public-resource and publication conditions.

14.9 Empirical Examination, Rival Explanations, and Design Limits

The power-sensitive account should be assessed through questions that could disconfirm its claimed additional value. One proposal is to prepare activity-specific, de-identified or fully synthetic dossiers in which contributors occupy different institutional positions while the technical quality of their work is held constant. Some cases would involve disagreement about attribution, some a proposal for continued access after a role ends, and others a clinical safety boundary or an optional task whose burden changed over time. Independent reviewers would receive either ordinary project and policy descriptions, a concise permissions-and-stewardship register, or the proposed scoped relational review. The task would be to identify competent decision-makers, distinguish possible benefit from approval, preserve non-participation, detect unfounded assumptions about consent, and propose proportionate routing rather than to announce a single fairness score.

Comparison should measure avoidable inference errors, correct acknowledgement of insufficient evidence, unequal treatment across otherwise comparable contributor positions, maintenance and review burdens, and how safely the record handles protected information. Some benefits cannot be captured by immediate throughput: a person who decides not to contribute, whose concern is handled privately, or whose independent work requires no Commons intervention may be exercising an important legitimate option. External reviewers should not infer a successful equity intervention from a rise in reported complaints or a decline in public disagreement without additional context. Report counts are shaped by trust, fear, accessibility, and the presence of safe alternative routes.

Several rival explanations deserve deliberate testing. Established hospital patient-advice services may already protect vulnerable voices better than a new Commons forum. A university laboratory may have clearer authority over equipment and occupational safety. Existing employment, volunteer, student-support, or research-integrity processes may offer remedies that a Commons cannot competently provide. Professional judgment may outperform an elaborate relational-record template when a question is narrow and local. If these alternatives produce equal or more reliable decisions with fewer burdens, the proposed field-governance interface has not established a practical advantage. Its theoretical benefit, if any, may remain limited to making otherwise obscured dependencies interpretable in a comparative analysis.

Any subsequent study involving volunteers, workers, or patients requires a justified methodology, applicable institutional permissions and, where relevant, independent ethics review; the design protocol in Chapter 17 cannot itself provide them. The sources of potential bias include self-selection, response inhibition, hierarchical dependency, missing accounts of people who left, and the difference between stated and feasible exit. A study that publicly archives all complaints in the name of transparency could recreate the very harm it aims to investigate. The research design should therefore follow data minimisation, role-sensitive confidentiality, and independently determined retention and disclosure conditions. The conceptual argument does not establish that any proposed mechanism reduces coercion, improves safety, or redistributes resources in a real hospital.

14.10 Legitimate Conditions of Evolutionary Field Governance

The analysis of power clarifies the boundary between governing *conditions for possible creation* and governing persons or projects toward a preferred output. In a legitimate field, the initial norms and resource custodianship make some activities feasible and responsibly limited; contributors retain appropriate control over whether and how to join optional creative work; the meanings and rights associated with particular artefacts remain open to qualified assessment and contestation; and more formal decisions are referred to institutions with actual competence. These conditions are neither guaranteed by a technical platform nor necessarily achieved by establishing a new legal organisation. Sometimes the best intervention is to preserve a public resource and remove an unnecessary gate, and sometimes it is to close an unsafe connection.

The chapter thus qualifies the evolutionary argument in Chapter 13. Historically recurrent activity can inform learning, but selective retention is normatively constrained; institutional popularity cannot justify compelled participation; and amplified circulation can deepen asymmetries when the capacity to bear maintenance obligations is unevenly distributed. The next chapter examines the longer history of these relations, especially how initial configurations, exclusions, inherited rules, and resource dependencies influence later adaptation. The overall research claim remains provisional: a generative relational field analysis may reveal interactions among power, feasible creative opportunities, legitimacy, and evolutionary continuity that simpler records obscure, but it must demonstrate its added value against existing institutional safeguards before its adoption could be recommended.

15 Historical Evolution, Path Dependence, and Institutional Adaptation

This chapter examines how the institutional history of an evolving university hospital Commons changes which creative activities can subsequently occur, which actors can recognise them, and which relations of access, support, and responsibility remain feasible. Chapter 13 introduced a partial account of field–practice co-evolution, while Chapter 14 distinguished an established practice from a legitimate one. The present inquiry concentrates on their temporal implications. An initially modest documentation convention may gradually become a necessary route for external discovery; an equipment allocation may privilege one form of production over another; an unfinished educational experiment may later become useful to a different community; and a former participant may retain a legitimate opportunity to continue work without retaining the institutional authority once attached to a particular role. The central object is the historical configuration of feasible alternatives, institutional memory, and adaptive responses, rather than the growth or survival of the Commons as a single organisation.

Historical institutionalism, evolutionary economics, and process-oriented sociology offer established explanations of sequence dependence, increasing returns, organisational learning, and gradual institutional change (Arthur, 1989; Pierson, 2000; Nelson and Winter, 1982; Levitt and March, 1988; Mahoney and Thelen, 2010; Abbott, 1995). The proposed generative relational contribution is more limited: to connect these explanations to heterogeneous creative trajectories, conditional resource access, external value circulation, partial historical evidence, and independently grounded normative competence. In the university hospital setting, the resulting design question concerns which enabling conditions are worth

preserving, modifying, transferring, or allowing to cease under changing needs and duties. Neither the published institutional histories nor the analytical examples below demonstrate that an actual hospital has implemented the proposed Commons.

15.1 Temporal Ordering and the Relational Constitution of Institutional History

A historical description requires more than an inventory of current resources. The order in which a student proposes a robotic device, a collaborator contributes a simulation, a university laboratory accepts a prototype, and a hospital later considers its use can change the meaning of each relation. An engineering demonstration in a non-clinical setting does not become an authorised clinical activity because a hospital eventually expresses interest. Conversely, a hospital's later rejection of deployment does not retrospectively erase legitimate educational or engineering achievements. The analytic importance of sequence is developed in a different domain by Abbott (1995), whose account of sequence analysis addresses processes and event order rather than treating observations only as interchangeable attributes. The present study adopts that sensitivity to order without assuming that each Commons trajectory admits a complete chronological reconstruction.

For a candidate historical episode, at least four temporal distinctions matter. The *occurrence time* concerns when an activity or event is claimed to have happened. The *recording time* concerns when a description was made or became available to a particular observer. The *effective interval* concerns when a permission, appointment, maintenance undertaking, or other normatively relevant condition actually applied, as determined by the competent source. The *interpretive time* concerns when an actor recognises an event or artefact as relevant to a new question. These times can differ substantially. A document uploaded in one year may describe a method used earlier; a later research article may provide a new interpretation of an old intervention; and the historical fact that a permission existed during one interval cannot by itself establish permission for a different activity or subsequent period.

The three levels of generative relational analysis apply to this reconstruction. At the *ontological level*, the analysis does not claim that a complete objective institutional history is recoverable, nor that a record exhausts the being of the event it describes. At the *relational level*, the actual historical configuration of resources, actions, capacities, institutions, constraints, and expectations may have continuing effects independently of whether later observers recognise them. At the *manifestation level*, partial documents, versions, testimony, physical traces, meeting notes, and archival metadata support bounded claims about those relations. The separation matters because an increase in the quantity of archived material can improve visibility without establishing a new historical relation, while the absence of a recorded trajectory does not show that the underlying work did not occur.

15.2 Documented Episodes, Historical Claims, and Reconstruction Limits

Chapter 8 developed partial records of creative trajectories, and Chapter 12 distinguished resource-access claims from actual authority and support. A historical inquiry should connect these objects without merging their types. For a bounded episode e and review context c , define an *analytic historical-episode record*

$$\text{HistClaim}_c(e) = \langle e, \tau_{\text{occ}}, \tau_{\text{rec}}, \iota, \mathcal{W}, \mathcal{N}, v \rangle. \quad (36)$$

Here e is an identified or provisionally identified occurrence; τ_{occ} is a claimed occurrence interval, possibly unknown; τ_{rec} specifies when the record became available; ι identifies the standpoint and scope of its author or custodian; $\mathcal{W}$ lists accessible supporting traces and relevant provenance limitations; $\mathcal{N}$ identifies normatively relevant assertions, including separately sourced effective intervals where known; and v characterises uncertainty, disagreement, and missing evidence. The record is a *claim about an episode*, not the episode itself. A description that attributes a training practice to a date does not independently establish that the practice then occurred, who consented, or which conditions authorised it. Likewise, an item in $\mathcal{N}$ is an assertion requiring a competent provenance, not a grant of permission generated by Equation (36).

The account is intentionally compatible with ordinary archives, laboratory notebooks, version histories, formal decision documents, and oral histories; it does not require all of them to be copied into a new Commons database. A public educational example may need only a source, date, version, and licence. A high-stakes question concerning a device proposed for hospital use might require substantially more precise evidence retained by an authorised institutional custodian. A sensitive volunteer report could instead belong entirely in an existing confidential reporting process, with no public Commons record. The principle is *proportionate and purpose-limited historical recoverability*, not maximum surveillance. The epistemic distinction between the making of traces and the selection of what becomes historical knowledge is particularly salient in Trouillot (1995), whose work addresses power in historical production. Its argument is a source of caution, not evidence that a specific hospital's records are systematically biased.

Historical reconstruction can also change actors' perceived identities and relevant governance categories. A volunteer's informal improvement may later be described as service design; a student's simulation may be taken up in an engineering course; a community artwork may gain a new educational audience. Such reclassification can be substantively productive, but retrospectively labelling a past contribution as "official hospital research" would be unwarranted without historical evidence and competent authority. Reinterpretation creates a new relation between a past trace and a present audience; it does not necessarily alter the past activity's original status. The Commons should preserve room for multiple bounded descriptions, including disagreement, rather than allowing an administrative metadata field to settle the history of a contested contribution.

15.3 Increasing Returns, Network Advantages, and Historical Lock-In

Path dependence has a more specific meaning than the observation that earlier events influence later ones. In Arthur (1989), competing technologies can experience increasing returns, and contingent adoption sequences can contribute to lock-in. Pierson (2000) develops increasing returns as an analytical foundation for path dependence in political processes, where timing, sequencing, and reversal costs may carry enduring effects. Neither source implies that each university hospital practice will exhibit self-reinforcing lock-in. The Commons proposal should identify the mechanisms through which a path becomes costly to abandon instead of invoking "path dependence" as a general explanation for any persistence.

Several mechanisms are plausible and empirically distinguishable. Shared technical documentation can make an established interface cheaper to reuse than a new one. Training and familiar routines can lower the immediate cost of staying with the current system. An external dissemination channel can become more attractive as collaborators learn to find each other's contributions through it. Long-term equipment purchases can create sunk costs, while continuity commitments can impose real switching costs on people who depend on the resource. Professional prestige, established grant contacts, or control over an information index can amplify the visibility of certain trajectories. These processes differ: a low switching cost may indicate genuine compatibility, whereas reputational concentration can exclude capable actors whose work is difficult to recognise in the dominant channels.

Consider a Commons whose earliest successful outputs are code repositories from an engineering cohort. The apparent success of the repository may attract software maintainers and external technology contacts. Later, an artist or educator may discover that project templates, recognition criteria, and staff time primarily support code. The repository could be technically open to everyone, yet less able to support a performance or teaching practice than its membership policy suggests. Historical increasing returns in attention and tooling can narrow practical access without any formal rule excluding those practices. Conversely, an established software workflow may legitimately remain the simplest infrastructure for software work. The comparative question is whether its extension to other modes of creation displaces feasible alternatives or merely offers one usable option among several.

An evolving field should therefore distinguish *beneficial accumulated capability* from *avoidable foreclosure*. It may be worth retaining knowledge and functioning interfaces that reduce future effort, while preventing initial dominance from becoming an unexamined justification for exclusive access to all resources. Possible mitigations include modular interfaces, small exploration budgets, transparent

criteria for time-limited resource commitments, exportable artefact formats, and external pathways that do not require allegiance to the Commons. These are candidate design responses, not a universal checklist. Where an ordinary departmental process remains accessible and capable, a new Commons-wide switching mechanism could itself become another source of lock-in.

15.4 Historical Alternatives and Bounded Counterfactual Feasibility

A retrospective critic can too easily conclude that historical participants should have chosen a course of action whose value became apparent only much later. A serious evaluation asks which options could plausibly have been undertaken *at the time*, with the information, skills, permissions, time, and material support then available. Chapter 4 distinguishes a valued outcome from a feasible generative opportunity, and Equation (29) provides an actor-sensitive representation of feasible work. Historical counterfactuals should preserve those qualifications instead of treating every imaginable alternative as a foregone opportunity.

For a historical decision point t , subject or cooperating group s , and context c , let $\mathcal{F}_{c,t}$ be the enabling configuration as defined in Chapter 13. For a declared candidate domain $\mathcal{A}_{s,c,t}$, a *bounded evidence-based reconstruction* should report both supported and unresolved candidates instead of assuming knowledge of the true set:

$$\begin{aligned}\widehat{\Omega}_{s,c,t}^{+,\mathcal{D}} &:= \{p \in \mathcal{A}_{s,c,t} : \text{Assess}_{\mathcal{D}_{\leq t}}(p) = \text{supported}\}, \\ \widehat{\Omega}_{s,c,t}^{?,\mathcal{D}} &:= \{p \in \mathcal{A}_{s,c,t} : \text{Assess}_{\mathcal{D}_{\leq t}}(p) = \text{unresolved}\}.\end{aligned}\tag{37}$$

The explicitly scoped corpus $\mathcal{D}_{\leq t}$ contains information obtainable from a specified historical standpoint by time t , not every record an investigator might recover later. The retrospective analyst may additionally consult later-recovered traces, but should report those in a separate *reconstruction layer*. A later-discovered invoice, for instance, can strengthen a historical claim that a workshop existed; it does not show that a particular student knew about it, was eligible to use it, or had the required safe access on the earlier date. The historical feasible-set estimate remains standpoint-specific rather than being silently enlarged by hindsight. The assessment must separately consider contemporaneous resources, knowledge, time, and permissions; its remaining outcome, *excluded*, records candidates contradicted within that same scope. These hatted sets are evidence classifications about $\Omega_{s,c,t}(\mathcal{F}_{c,t})$, not asserted subsets whose membership has been independently verified. That distinction avoids circularly assuming the unknown true opportunity set while claiming to reconstruct it. The sets confer no access rights. An investigator may report that no historically defensible verdict is available, rather than retrospectively condemning actors for not pursuing alternatives whose feasibility was not then knowable.

A robotics student whose earlier proposal was not funded might later be credited with missing a valuable innovation. Yet at the earlier time, the student may have had no safe workshop, adequate supervision, or authority to test in a hospital. A university engineering course, a simulated design exercise, or a smaller public model may have been feasible alternatives, but their viability must be shown rather than assumed. In contrast, an educator's low-cost public exercise might have been feasible with ordinary faculty support and thus did not require creating a new Commons department. The counterfactual analysis should ask whether a different resource allocation could have preserved a genuine opportunity with proportionate cost, and whether the evaluators are mistaking later success elsewhere for proof that the earlier institution was obliged to support the work.

15.5 Institutional Memory, Forgotten Opportunities, and Recoverable Paths

Institutional memory may preserve more than celebrated achievements. It can retain unsuccessful experiments whose failure conditions remain instructive, forgotten non-sensitive methods that might later be reused, maintenance instructions necessary for safe continuation, and the reasons a collaboration stopped. Nevertheless, keeping every draft, discussion, and personal interaction indefinitely would be costly, intrusive, and often unnecessary. The archive itself can impose burdens on contributors and custodians.

The historical value of a record thus depends on its purpose, accessibility, rights, context, credibility, and future interpretability, not simply on its existence or volume. This qualifies the ordinary assumption that more complete trace capture always improves an evolving Commons.

Recoverability has several degrees. A *visible trace* can be located. An *interpretable trace* retains enough context for a reader to understand what it might represent. A *reusable result* can be lawfully and practically used for a particular purpose. A *revivable trajectory* has participants or custodians willing and able to develop it further under current conditions. The degrees do not follow automatically from one another. A preserved robot design may be legible but require obsolete hardware; an educational manual may remain legally reusable but lack a knowledgeable teacher; a volunteer improvement may be valuable yet inappropriate to publicise because its documentation would disclose sensitive encounters. The disappearance of a practice from the Commons dashboard cannot independently prove that its knowledge or value disappeared.

An appropriate recovery mechanism can be modest. A short catalogue entry for a public artefact may point to its existing repository, date, permissive or restrictive licence, available maintenance status, and contact route if one exists. A former contributor may retain rights in a work without continuing access to institutional systems. A collaborator who later discovers a use for the work may seek fresh permission or engage through an external public channel. The Commons need not maintain a standing project group in anticipation of that future event. In many circumstances, a pointer to an institutional archive or public library is safer and more durable than a parallel database. For sensitive information, recoverability can be confined to the competent institutional custodian or may be intentionally limited by lawful deletion and retention requirements.

Power affects whose histories are preserved, as suggested by Trouillot (1995). In a hospital-related Commons, professional prestige and formal project status may make some artefacts easy to record, while routine improvements, translation work, care experience, and uncompensated maintenance remain less visible. The suggested response is not unrestricted collection of personal histories. It is a method for identifying whose perspectives are missing from specific, justified evaluations, then seeking consent-based or appropriately protected forms of evidence where permissible. A historically under-recognised contribution may warrant correction or a new opportunity for dissemination; such correction does not by itself establish a retroactive financial entitlement, licence, or institutional endorsement.

15.6 Gradual Adaptation, Repurposing, and External Infrastructure Dependencies

Institutional adaptation is not always a replacement of one complete organisational design with another. Research on gradual institutional change highlights alterations to practice and effect that can accumulate within seemingly stable formal arrangements (Mahoney and Thelen, 2010; Thelen, 2004). A rule may acquire a different practical function as participants and surrounding constraints change. An established resource may be reused for a new purpose, while a service with unchanged written procedures may cease to satisfy its original public objective when the environment changes. The concepts of drift and conversion, as analysed in comparative institutional scholarship (Hacker et al., 2015), provide useful distinctions, although their empirical cases do not supply direct evidence about hospital Commons.

For the proposed Commons, adaptation may involve using an existing university repository to index artworks as well as papers, modifying a public feedback form to make accessibility needs clearer, transferring an open-source robot simulation to a specialist engineering community, or ending a central project dashboard while retaining publicly accessible artefacts. Such changes should be governed by the specific activity, available resources, licence conditions, affected participants, and maintenance responsibility. Creating another platform is not necessarily an adaptive response; it may duplicate the service whose earlier problems motivated the change. Reusing existing infrastructure is often preferable when its availability, stewardship, accessibility, and data rules are suitable.

External services create historically consequential dependencies. A publishing platform may alter its API, cost model, licence, service availability, or eligibility rules. A university department may reorganise; a volunteer service may lose its liaison; an external funding programme may change its application

criteria. A Commons that depends on one gateway for all circulation may then face a discontinuity even though its underlying creative work remains viable. Candidate responses include an exportable inventory of openly shareable artefacts, preservation of durable identifiers where justified, a documented alternative dissemination route, limited interoperability, and a named person or institution responsible for deciding whether any transition is warranted. These safeguards are not commitments to mirror every external platform or to preserve every public submission forever. Their proportionality should be judged against actual risk, work volume, and alternative arrangements.

Historical changes in dissemination also feed back into the identity of relevant stakeholders. A teaching tool originating in volunteer education may be adopted by a community training group; the new audience may introduce translation, accessibility, and maintenance needs that its original creators did not anticipate. These relations can produce new legitimate claimants to consultation or new kinds of evidence, without turning each recipient into a Commons member. External value circulation may thus alter the field's future resource demands and evaluative categories. Yet public attention and adoption still do not establish clinical validity or grant permission for hospital practice, as Chapters 10 and 14 have emphasised.

15.7 Handover, Role Exit, and the Historical Limits of Responsibility

The end of a role and the end of a creative trajectory are different events. A student may graduate, a volunteer may complete a service term, an educator may retire, and an external collaborator may withdraw, while a public artefact remains usable under its actual licence. Conversely, an object may continue to exist when no person is prepared to maintain it. Chapter 12 introduced time-bounded access and stewardship claims. Their historical consequences concern whether responsibility can be transferred, whether an existing undertaking can be honoured, and when discontinuation is the more responsible option. One should not infer an indefinite personal duty from previous participation or past recognition of a contribution.

A proportionate handover distinguishes the work from the role. For a physical device, it may require a competent custodian, an agreed location, clear safety restrictions, repair information, and a decision concerning disposal or transfer if support ends. For software, it may be enough to identify its source, licence, last working version, and whether anyone currently accepts maintenance. For an educational practice, handover may involve an openly shareable method and contact details that remain public only with appropriate agreement. For a community relationship, the most important continuity may be the participants' ability to continue independently, without preserving a comprehensive behavioural record. No transfer arrangement can override contractual duties, privacy requirements, intellectual-property rights, or institutional competence.

A Commons needs ways to represent *ending* as well as beginning. Pausing a trajectory, marking an artefact as no longer maintained, limiting unsafe access, returning a resource to an established department, or retiring a redundant collaboration interface can preserve broader generative capability. Closure need not erase history; it also need not imply that the Commons is obliged to subsidise perpetual access. A former member's legitimate right to use openly licensed work may survive the termination of a hospital badge, while access to internal networks, protected data, or equipment may end immediately or according to a separately authorised period. Any subsequent re-entry should be evaluated under current permissions and resources rather than inferred from past status. The ability to terminate disproportionate support is itself relevant to protecting future participants from inherited burdens.

15.8 Illustrative Historical Trajectories and Design Countercases

Table 19 compares hypothetical trajectories that are similar in having an earlier practice and later institutional change, but differ in source of continuity, access conditions, and value circulation. The cases are analytical counterexamples rather than reports of real hospitals. They deliberately include circumstances in which Commons-level intervention is unnecessary or harmful. A positive result for a Commons cannot be inferred from an increasing archive count or a higher share of projects with named custodians

Table 19: Illustrative historical configurations and contrasting adaptation judgments. The examples are hypothetical; they do not establish empirical benefits or institutional authorisations.

Trajectory	Historical change and interpretive problem	Candidate adaptation or simpler alternative
Robot simulation	A student's non-clinical design becomes visible years later; a new audience seeks deployment although earlier approval covered simulation only.	Preserve usable design history; route any proposed hospital use to competent current review. An engineering repository may suffice.
Educational method	A once-unnoticed open teaching method acquires value for another course after its creator leaves.	Reuse an existing public archive and seek fresh participation if desired; do not reinstate an institutional role by inference.
Volunteer micro-improvement	A low-visibility suggestion was locally useful but never formally named as a Commons project.	Recognise only safely shareable learning; retain protected feedback in the appropriate existing channel.
External creative path	A community group develops an idea independently, without a Commons grant or continuing institutional relationship.	Allow external value formation; avoid inventing an institutional contribution or compulsory return obligation.
Dominant portal	Early software projects attract most platform attention, obscuring physical, educational, and artistic work.	Compare targeted discovery improvements against maintaining existing specialist channels; test new costs and exclusion effects.
Unsupported archive	A public artefact remains accessible but depends on an unstaffed custom service with repeated repair needs.	Export or transfer material when lawful and feasible; retire unnecessary hosting without claiming the work lacks value.

when the additional record itself creates delay, surveillance, or hidden maintenance labour.

The robot case illustrates temporal misclassification: past development evidence is not current permission to operate. The educational case illustrates delayed reinterpretation and a potentially modest adaptation. The volunteer case demonstrates why a project dashboard cannot substitute for legitimate channels handling protected concerns. The independent path challenges the idea that every beneficial outcome originates in the Commons. The dominant portal case tests self-reinforcing visibility and the feasibility of alternatives; the unsupported archive case tests responsible exit. These are not distinct experimental results. They are ways of specifying the questions that a future comparison must answer with evidence.

15.9 Empirical Evaluation of Historical Added Value and Institutional Burden

The proposed historical analysis needs a comparison that distinguishes explanatory improvement from record proliferation. A bounded prospective study could create fictional dossiers with controlled differences in event order, decision dates, partial documentary evidence, changed external-platform conditions, resource availability, and contributors' preferences. Evaluators could receive the same underlying facts in three formats: an ordinary chronological narrative, an existing institution's simple register, or the typed historical episode and trajectory interface proposed here. Their tasks would include distinguishing when an activity was performed from when it was documented, recognising expired authority, identifying plausible historical alternatives without hindsight, selecting a proportionate archive or handover response, and admitting insufficient evidence when appropriate. Randomised allocation to information formats, where feasible and ethically justified, could help test differences in interpretation rather than merely observers' prior expertise.

Outcomes would include errors in temporal ordering, unjustified retrospective authorisation, mistaken assumptions about a continuing maintenance obligation, omission of relevant external alternatives, and inaccurate recovery claims. Secondary outcomes would include the time and skill required to use the records, protected-information exposure, ability to contest a description, and downstream administrative workload. Expert review would be needed to design the answer key for normative questions, and disputes with legitimately divergent interpretations should remain marked rather than being scored as mechanically false. If a standard chronological record enables the same distinctions at lower cost,

the elaborate relational record has not shown practical incremental value. The contribution may instead remain an analytic vocabulary for discussing particular complex cases, and even that claim should be tested against established sequence and institutional-history methods (Abbott, 1995; Pierson, 2000).

Observational research would face more difficult inference problems. Successful trajectories are easier to locate than abandoned ones; participants who withdrew may be hard or inappropriate to contact; institutional adoption may reflect professional hierarchy rather than intrinsic quality; and later observers may reconstruct early alternatives using knowledge that actors then lacked. Comparative studies would need to sample non-adopted practices, ordinary external projects, and low-visibility improvements as well as published successes, with appropriate confidentiality and consent. A cross-context comparison should also distinguish university research offices, volunteer services, technology-transfer units, public repositories, and clinical governance offices, because they hold different institutional competences. No general institutional effectiveness claim follows from a small set of stylised cases, and no hypothetical data should be described as real-world evaluation.

The normative significance of outcomes remains independent of predictive performance. A richly documented path may reveal sustained coercion or maintenance inequity; a historically successful allocation may have excluded people whose contributions were never recorded. The correct response to those findings is not necessarily a new Commons archive. It could involve improvements to existing channels, reduced access barriers, stronger limits on additional demands, more equitable recognition, or withdrawal of an unnecessarily intrusive system. Similarly, the mere ability to forecast which project attracts the most future attention would not justify concentrating resources upon it. Historical evaluation should compare actor-specific feasible opportunities, lawful uses, plural valuations, and distribution of burdens, while accepting that these dimensions may remain partly incommensurable.

15.10 Institutional Adaptation and the Comparative Design Question

A historical approach changes the question posed to institutional designers. Instead of asking which complete Commons structure ought to be installed for an imagined future, the inquiry asks which limited commitments should be established today, what evidence would make them revisable, and how responsible change could occur without appropriating participants' past work or binding their future agency. The Commons should be capable of preserving appropriate learning without treating every activity as permanently institutionalised. It should be able to connect a newly valuable older artefact to a current interested party without claiming retrospective ownership. It should also be capable of reducing its own functions where existing universities, community organisations, public platforms, or specialist institutions already provide better access and continuity.

Historical adaptation therefore depends on both memory and the freedom to depart from an inherited path. Some accumulated constraints represent justified investments and legitimate expectations, while others reproduce avoidable exclusion, excessive costs, or obsolete categories. Path dependence may help explain the difference, but cannot by itself decide which direction is fair or effective. The proposed generative relational synthesis examines the shifting relationship among feasible creative activities, institutionally mediated circulation, actor-specific capabilities, and partial knowledge of their histories. Its value for university hospital Commons remains conditional on showing, through comparison, that these relations can be recognised or responsibly acted upon more effectively than with existing institutional arrangements. Chapter 13 supplies the general dynamic schema; the present chapter supplies temporal reconstruction, remediability, and responsible exit as specific interpretive tests. The following design scenarios can then compare concrete configurations without projecting an inevitable institutional destination.

16 Comparative Commons Configurations and Illustrative Design Scenarios

This chapter brings the preceding analysis into a comparative institutional design inquiry. Its object is neither an ideal university hospital organisation nor a menu of technologies to be installed. It is a family of *configurations of enabling conditions* under which heterogeneous subjects may undertake creative activities, exchange work, encounter possible collaborators, and develop paths for circulation and continued use. A suitable configuration depends on which practices are already viable, which new activities would become feasible, who can legitimately permit the relevant resources to be used, and who can maintain the required conditions. These questions connect the seed practices of Chapter 5, the situated work bundles of Chapter 6, the partial institutional transitions of Chapters 11 and 12, and the historical and normative limitations of Chapters 13–15.

The examples below are *designed counterfactuals*, not accounts of actual hospital projects, simulation findings, or promises of institutional cooperation. The repeated situations in earlier chapters will be integrated as one cross-case programme rather than treated as separate evidence of success. They place ordinary arrangements beside possible Commons arrangements so that it remains possible to conclude that no additional institution is justified. Knowledge-commons research supplies a comparative framework for participants, resources, purposes, governance rules, and outcomes (Frischmann et al., 2014a; Ostrom, 2005); infrastructure studies warn that successful arrangements depend on situated work and continuing maintenance rather than visible technical features alone (Star and Ruhleder, 1996; Star, 2010; Jackson, 2014). Evolutionary governance scholarship already treats institutional development as historically contingent (van Assche et al., 2014). The proposed contribution is a context-sensitive comparison that simultaneously tracks creative feasibility, value circulation, normative scope, historical evidence, and the non-substitutable burden of stewardship. Whether the joint comparison improves actual decisions remains an empirical question reserved for the planned Chapter 17 on design evaluation and theoretical revision.

16.1 Comparative Objects, Cases, and Levels of Relational Analysis

Comparisons must first specify their object. A new Commons website, an already functioning laboratory, an informal volunteer conversation, a prototype workshop, and a university’s established grant office are not alternatives of the same type. A *field configuration* specifies conditions and interfaces; a *practice* is situated activity that may or may not occur within those conditions; a *creative trajectory* concerns the changing historical relations of activities, artifacts, persons, and uses; and a *decision* is an action taken by an actor with a particular institutional competence. A single platform may support many trajectories, while one trajectory can cross multiple organisations without joining them into one institution. The design comparison therefore has to relate these objects without inferring practice from available infrastructure, permission from published metadata, or actual benefit from circulation.

For each proposed arrangement d in context c at time t , the following *analytic design-case dossier* makes the minimum comparison dimensions explicit:

$$\text{DesignCase}_{c,t}(d) = \langle \Sigma_{c,t}^d, \mathcal{B}^d, \mathcal{U}^d, \mathcal{P}^d, \mathcal{L}^d, \mathcal{M}^d, \mathcal{D}^d \rangle. \quad (38)$$

Here $\Sigma_{c,t}^d$ denotes seed practices with independent purposes and viable initial conditions at the declared starting context and date; $\mathcal{B}^d$ records situated bundles of required tools, information, skills, time, and material support; $\mathcal{U}^d$ identifies resource custodians and the actual decision-making authorities to be consulted; $\mathcal{P}^d$ identifies proposed discovery, co-creation, recognition, dissemination, and possible return paths; $\mathcal{L}^d$ collects the scope-limited access, rights, consent, and safety constraints relevant to each proposed activity; $\mathcal{M}^d$ describes accepted or realistically fundable maintenance commitments and burdens; and $\mathcal{D}^d$ contains the evidence available to assess these claims, including uncertainties and disagreements. The dossier is a comparative *description*, not a database prescription or a source of institutional permis-

sions. A value recorded in $\mathcal{L}^d$ is a claim to be checked against an independent source of authority; it cannot grant that authority by being written into Equation (38).

The generative relational three-level distinction disciplines the comparison. The ontological status of institutions, creative values, and subjects is not settled by a proposed tuple or by observed traces. At the level of relational reality, particular capacities, demands, permissions, dependencies, and historical practices may actually enable or constrain future work. At the manifestation level, a catalogue entry, interview, grant decision, test report, or archived version yields only a situated and potentially incomplete account of those relations. A case scored highly on metadata coverage may still have no maintainable workspace; a less visible independent practice may be creatively viable without occupying the Commons catalogue. Case comparison should consequently identify the standpoint and evidence supporting each judgment and allow findings of indeterminacy.

The same comparators do not require identical metrics for each domain. A student using open teaching resources and a maker testing a robot in an isolated simulation have different prerequisites and different safety implications. Suitable comparisons are *within activity and between alternative support arrangements*: for the same bounded creative need, what could a person genuinely do under ordinary arrangements, under the proposed Commons, and under a smaller interface change? Only then is it meaningful to discuss any increment in feasible activity or any newly transferred cost. The differential opportunity set in Equation (7) and the actor-sensitive feasible-activity relation in Equation (29) provide earlier analytic foundations, without establishing measured causal effects.

16.2 Ordinary Public Resources and the Minimal Independent Configuration

The first comparison is deliberately difficult for the proposal: an individual can already create and distribute valuable work without forming a new hospital-related Commons. An education student may use a university library, publicly licensed lessons, a local computer, an existing seminar, and an external publication or repository. A programmer may already have a public issue tracker and code hosting account. An artist may draw on community workshops and a public archive. In these settings the existing arrangement is the *baseline*, not an underdeveloped version of the proposed Commons. The student can develop, publish, and continue work with no formal membership, hospital affiliation, or Commons-specific proposal process.

A smallest plausible Commons addition would consist of an optional, maintained pointer to a resource, a clearly identified way to ask whether a connection exists, and, where useful, a way to link voluntarily disclosed outcomes back to an original resource. It might even consist solely of a documented agreement that an existing university or public resource is sufficient. There is no reason to copy its files, recreate identity management, require activity registration, or establish separate committees merely to create the appearance of an autonomous field. W3C's DCAT 3 illustrates how federated resource discovery can be represented through metadata without requiring a new central repository (World Wide Web Consortium, 2024a); the specification is an interoperability vocabulary, not a certification of the truth, quality, rights, or permitted use of a listed item.

The decisive practical question is whether a specific activity lacked an enabling condition that a proportionate Commons interface could provide. Suppose an independent educator cannot identify an existing consenting collaborator in a different professional field, but an established interdisciplinary seminar already makes introductions. The seminar may be the appropriate support, and a new directory adds little. Alternatively, several legitimate non-clinical learning exercises may repeatedly fail because their publicly shareable materials are dispersed and poorly documented. A lightweight cross-reference might improve recovery, provided someone can maintain it and the expected benefit is not already supplied by a library service. The proposed Commons therefore begins with a test of *institutional sufficiency*, not with a presumption that new infrastructure is needed.

This baseline also provides a useful negative case. If the additional site increases registration work, duplicates repository content, creates an unsupported contact address, or induces people to submit project descriptions they did not wish to share, the Commons may reduce the real capability to work. A field-

governance study must be able to represent that as a design failure rather than interpret all platform activity as evidence of cooperation. Such a comparison has a particularly important distributive dimension: a free public resource may be more accessible than a university-branded service whose access depends on credentials unavailable to outsiders or former students.

16.3 A Bounded University–Hospital Interface for Educational and Service Questions

A second configuration considers a university researcher and a hospital education or service team who encounter a shared problem. The case starts with an activity that each party already has reason to undertake. A researcher may investigate adult learning through public or synthetic exercises. A hospital training team may be responsible for preparing staff or volunteers. Some educational materials, if their custodians agree and the materials can be safely shared, might become the basis of professional discussion. A small interface could make the mutual relevance discoverable and enable an initial conversation. This is not an argument for an embedded hospital research division, nor an assertion that a particular hospital permits such an exchange.

The seed conditions here differ from those of the independent baseline. Two independently legitimate activities must exist; participating representatives must be willing to communicate; a specific proposed exchange must have an appropriate disclosure basis; and each organisation must retain its own decision competence. A researcher proposing to improve an orientation document might first make a synthetic example, then ask whether a relevant training officer wishes to review it. Sharing a public educational observation does not, by itself, amount to approved recruitment of hospital volunteers, access to private service incidents, or permission to introduce a training intervention into daily operations. If a later stage requires interviews, restricted documents, institutional surveys, or real-world evaluation, the scope and necessary approvals change. Research ethics assessment and other applicable rules must be evaluated in the actual jurisdiction and activity, rather than presumed from the existence of a Commons interface (Council for International Organizations of Medical Sciences, 2016; World Medical Association, 2024).

The least burdensome configuration may thus be a contact protocol and a bounded dossier containing a publicly shareable problem description, the proposed purpose of a discussion, a statement of what information cannot be transmitted, the responsible custodians, and any response received. Existing hospital channels retain authority over complaints, staff duties, patient safety concerns, and operational decisions. The Commons has no independent licence to adjudicate those matters. The interface can record a refusal or the absence of a suitable receiving partner without converting either into a defect that the hospital must repair by starting a project.

A plausible positive outcome is an independently publishable teaching method, with later optional institutional testing. Another is a useful discussion followed by no formal collaboration. A null outcome occurs when existing clinical education and university research offices already connect the same people with equal or less burden. An adverse outcome would arise if the interface exposed identifiable accounts, implied institutional endorsement, or displaced safety reporting with an informal public forum. In this configuration, the most important design property may be the *ability to stop an inappropriate transition*, not the number of proposals that advance to an operational stage. The WHO Patient Safety Rights Charter is an international policy reference for protecting safe care, but it is not a hospital-specific approval instrument or a substitute for binding domestic requirements (World Health Organization, 2024).

16.4 Cross-Disciplinary Creation Through Existing University and Public Workspaces

A third configuration begins with several professionals who already have independent reasons to create: a student working on a teaching tool, a computing researcher developing a visualisation, and a community educator translating materials for learners with different needs. Their initial activities may be sustained in a classroom, public repository, community library, or existing academic programme. Commons infrastructure can offer a modest shared description of issues, artifacts, compatible tools, and optional opportunities for feedback, while each participant retains control over whether to contribute and

under what applicable conditions. The existence of a potentially useful combination does not prove that everyone desires the collaboration or that every output should become public.

In this case a common interface is most useful when interdisciplinary translation adds something unavailable to one professional community. An engineer's working prototype may be difficult for educators to evaluate without an understandable demonstration; an educator's conceptual account may be difficult to implement without computational assistance. Star and Griesemer (1989) analyse heterogeneous cooperation involving boundary objects, and Carlile (2004) distinguishes the practical demands of transferring, translating, and transforming knowledge at boundaries. These studies do not establish that any particular Commons platform causes good interdisciplinary collaboration. They do suggest that a usable representation, a negotiated purpose, and appropriate social interaction can matter more than a technically sophisticated catalogue.

A configuration with a shared sandbox can be narrower than a new administrative programme. A public simulation, a versioned teaching package, an accessible demonstration, or a jointly maintained terminology note may suffice. If the practice expands, participants may later request a workspace, translation assistance, or an equipment allocation through existing university programmes. These are resource requests, not claims of automatic entitlement. The design should also permit divergence: the programmer may maintain a software branch independently, while the educator continues a teaching method in a separate institution. Their uses may retain a discoverable relation without being merged into an obligatory project or legal entity.

This case illustrates how variation and interaction can produce new work, but also how shared infrastructure may lock in the wrong standard. The most visible professional vocabulary can exclude contributors who do not use it. A collaboration portal may favour written code over tacit practical knowledge; a standardised contribution form may treat a small accessibility adjustment as less worthy than a large engineering artifact. A protective design permits multiple artifact forms, appropriate attribution, contextual disagreement, and low-cost exit. It also asks whether any common maintenance commitment has actually been accepted. If ordinary classrooms and laboratories already provide these conditions, a Commons-specific interface should remain optional or absent.

16.5 Robotics and Physical Artifacts Across Safety-Constrained Contexts

The fourth configuration examines the student's robotics idea, which has served throughout this paper as a test of the difference between generative capability and hospital deployment. The idea may be inspired by a volunteer's observation of logistical work, but participation in volunteering neither assigns the student an engineering duty nor authorises use of institutional observations containing protected information. A legitimate starting practice could instead involve a public engineering problem, synthetic logistics scenarios, software simulation, and a student-controlled design notebook. The Commons might connect the student with a public fabrication space, an existing university maker laboratory, appropriate safety training, or a research mentor willing to engage. These connections provide possible conditions of creation; they do not predict that the prototype will work or be institutionally valuable.

The physical artifact imposes requirements not present in a document repository. Code execution, mechanical fabrication, electrical testing, storage, supervision, liability, product safety, and equipment retirement may depend on different qualified people and facilities. A simulation of a cart navigating a synthetic layout can be carried out under a different permission and risk profile from testing a mobile robot in a hospital corridor. The progression from a digital model to bench tests, from bench tests to controlled non-clinical demonstrations, and from those demonstrations to a potential operational proposal therefore contains *distinct activity transitions*. None should be inferred to have occurred, or to be permitted, merely because the preceding technical step succeeded. Product regulation, research rules, employment constraints, patient safety, and institutional approval depend on the real use and jurisdiction.

A field infrastructure for this trajectory would not need to own its own workshop. It may offer an optional trace of public plans and code, point to existing safe test environments, enable willing collaborators to discuss the problem, and preserve rights and responsibilities for physical custody where agreed.

If an external engineering faculty or maker community already provides adequate training and materials, that existing facility is likely to be a more appropriate custodian than a hospital volunteer office. If an authorised receiving institution later finds a use for the prototype, the circulation interfaces examined in Chapters 10 and 11 may help identify its relevant review and support pathways. An introduction or expression of interest is not a grant, a purchase order, or permission to use the device in clinical settings.

This configuration's historical trajectory may bifurcate. One branch can continue as open-source educational robotics even if a hospital declines to consider deployment. Another may become an engineering research project outside the Commons. A third may end for want of an agreed steward of batteries, components, software vulnerabilities, and storage. The fact that a later sponsor recognises the robot does not prove that its original hospital-inspired purpose was feasible or authorised. Equally, an abandoned device can leave behind independently valuable code, teaching exercises, or negative engineering lessons. A useful comparison must separate those outcomes rather than assigning one success label to the whole trajectory. The maintenance burden of a tangible artifact can be decisive even when its design is attractive; someone must either accept a proportionate stewardship undertaking or permit responsible closure.

16.6 Volunteer, Patient, and Community Practices With Limited Additional Burden

A fifth configuration begins with existing voluntary and community practices, not with a queue of tasks for a Commons to distribute. A hospital volunteer may already spend an agreed period assisting visitors. A patient or family member may wish to express an experience without joining a continuing improvement group. A local artist or community organiser may offer an independently developed activity for public discussion. Each position has a different relationship to hospital resources, vulnerability, recognition, time, and control. A design that treats these people as an inexpensive supply of unassigned creative labour would undermine the autonomy it purports to enable. Chapter 3 made the distinction between the original role and any further contribution explicit; the present comparison asks what infrastructure is appropriate when the desired creative activity is small, intermittent, or entirely absent.

A minimal configuration can provide ways to access public guidance, share an optional non-sensitive idea, discover an existing community partner, and receive a proportionate response. It should not ask a patient to turn a complaint into an innovation proposal, route urgent safety concerns through a public suggestion board, or require volunteers to undertake documentation beyond their agreed activity. Those who prefer not to contribute should be able to continue legitimate roles without penalty. Where an idea is relevant to formal safety or service operations, the competent existing process remains the receiving and deciding body. A Commons referral may help someone find that process, but cannot displace it. Approaches to participation and knowledge credibility must also be sensitive to unequal capacity to speak or leave (Fricker, 2007; Fung, 2006; International Labour Organization, 2016).

Consider a small change to a public-facing wayfinding illustration, produced voluntarily in a workshop using fictional locations. Its value may lie in improved comprehensibility, community engagement, creative learning, or later adaptations by another institution. No hospital must adopt the illustration. If a responsible team later wishes to use it in actual signage, the conditions of accuracy, accessibility, copyright, local procedures, and safety-related responsibility need independent review. The illustration might instead be released for other education settings or archived by its creators. A contribution path that ends outside the hospital may still be a valuable one, without demonstrating a measurable hospital performance gain.

The null case matters just as much: a volunteer may have no further creative interest; a patient may wish only for a confidential answer; a community activity may work best with no connection to institutional infrastructure. The field should be capable of recognising these outcomes without attributing lost value to a supposed failure to engage. A harmful configuration would require extra portal accounts, recurrent performance indicators, unapproved sharing of personal experiences, or unpaid moderation expectations for people already doing essential work. Existing patient relations, workplace, volunteer support, and community channels often have distinct and better-grounded responsibilities. Resource

integration must respect these distinctions rather than centralise sensitive functions for technical convenience.

16.7 Distributed External Circulation and Independent Value Recognition

The sixth configuration gives primary emphasis to creation and use beyond the Commons. A student develops a robot simulation, publishes suitable code in an independently chosen repository, shares a non-sensitive educational video, and later receives technical criticism from an external engineering group. Another contributor shares an openly licensed teaching method through an educational network; a community artwork travels through non-academic venues; a service-improvement concept may reach another local organisation through a professional association. These are not interchangeable dissemination objects. Each path has a different audience, custodian, reuse condition, and way of judging practical effect. None requires the original Commons to become an institutional clearinghouse for every field.

A reasonable common capability might be a small catalogue of opted-in, appropriately described public artifacts, pointers to their actual custodians, metadata about scope and licence where verified, and a way to note a subsequent continuation when the relevant parties wish to do so. The system should not automatically mirror works, infer blanket reuse rights, or redirect private material to public networks. DCAT 3 supplies one published model for federated cataloguing of datasets and data services (World Wide Web Consortium, 2024a); its ontology is not a universal schema for material artifacts, performances, service practices, or all forms of relational value. Likewise W3C provenance vocabularies can support representations of derivation claims without certifying ownership or institutional competence (World Wide Web Consortium, 2013). A well-maintained hyperlink to an existing repository may be sufficient for many cases.

A dissemination path can produce discovery, inquiry, critical feedback, reuse, support, or no uptake at all. External professional recognition may depend on evidence the Commons cannot provide. Institutional funds or other resources may be granted only to eligible applicants through competent processes, as Chapter 11 explains. The platform should preserve the difference between making an application route visible and representing an application as endorsed or likely to succeed. The contributor may refuse a suggested route, pursue an independent audience, or cease work. External reuse can also generate maintenance costs; popularity is not proof of reciprocal benefit for the original contributor. Open circulation accordingly entails neither mandatory value return nor an indefinite duty to maintain the artifact.

A distributed approach can fail when links decay, origin context disappears, custodianship is unclear, or a receiving audience mistakes a contextual observation for universally valid guidance. Such risks call for selectively maintaining necessary identifiers, terms of use, source context, and contact or archival arrangements, not maximal central surveillance. The comparative alternative may be an existing public search engine, campus outreach channel, professional network, or domain repository. The Commons has a reason to provide a federating layer only if it can demonstrably make otherwise disconnected, legitimate trajectories more feasible to find, understand, or continue at a proportionate cost.

16.8 A Comparative Matrix of Initial Conditions, Interfaces, and Failure Modes

Table 20 condenses the six design configurations by the conditions that must already exist, the smallest potentially useful Commons addition, and a decisive reason to abstain or revise. The rows are not models of actual hospitals, and no row has a presumptive rank. Comparison takes place within a situated activity, not between the moral value of an educational practice, a robot, a community encounter, and a confidential complaint.

One case can combine elements of several rows. An educational robot may require a safe independent simulation environment, a bounded introduction to a training professional, an engineering custodian, and external circulation of a public software component. These elements need not be assembled into one institution or a permanent joint membership. The comparison should ask whether interfaces can be activated for a particular purpose and later retired without erasing lawful, independently held contributions. An organisation chart cannot answer that question by itself. Conversely, when several interfaces impose

Table 20: Illustrative Commons configurations and ordinary institutional alternatives. All cases are hypothetical. “Addition” means an optional interface rather than an automatically justified organisation.

Configuration	Viable seed and existing alternative	Possible minimal Commons addition	Failure, boundary, or abstention condition
Independent public resources	Autonomous creator, university/public repository and ordinary seminar	Optional discovery pointer, consented cross-reference	Existing tools suffice; another portal creates cost or exclusion
Bounded university–hospital interface	Legitimate educational interests on both sides; existing authorised contacts	Scoped introduction and shareable non-sensitive problem description	Confidentiality, absent willing partner, or attempt to bypass operational controls
Cross-disciplinary creation	Independent work in education, computing or community learning	Shared synthetic sandbox or negotiated boundary artifact	Standardisation excludes tacit skills; existing laboratory already suffices
Physical robotics track	Safe simulation and non-clinical engineering support	Artifact history plus pointers to qualified facilities	No custodian, unsafe tests, or implied clinical deployment permission
Community and volunteer practice	Existing duties or independent community work	Optional low-burden response and public sharing channel	Coercive extra labour, sensitive disclosure, or duplicated complaint channel
Distributed circulation	Legitimately shareable output with an external custodian	Federated metadata and audience-specific routing	Broken links, rights uncertainty, unwanted exposure, or no added discoverability

recurrent dependencies and substantial maintenance burdens, a named steward and more explicit governance arrangement may be warranted. The adequate structure is then *a conditional result of practice and responsibility*, rather than a predetermined goal.

The matrix also highlights that genuine diversity concerns more than disciplinary labels. Several engineers developing nearly identical public applications may offer less variation of creative needs than a small group of learners, educators, artists, and service workers whose practices have different trajectories and resource requirements. Yet diversity by itself is not a sufficient reason to establish shared infrastructure: participants must have feasible reasons and permissions to act, and some form of mutual interaction must be worthwhile. Nor should the initial configuration be chosen merely because a later analyst can imagine an elegant route among all its elements. Chapter 5 already argued for viable practices and constitutive safeguards as initial conditions; Table 20 expresses how those conditions vary rather than imposing an invariant institutional population.

16.9 Cross-Case Activity Register and Comparable Institutional Alternatives

The configuration matrix above describes possible *types of support*; it does not yet define test cases. A case must be narrowed to an actor, a specific potentially creative activity, the access and decision conditions at a declared date, a meaningful existing alternative, and a time horizon over which different consequences could be observed. Repeated educational, robotics, software, volunteer, artistic, and circulation examples in earlier chapters are illustrations of different mechanisms, not independent empirical samples. Table 21 therefore introduces a common set of *analytical case families* to which those chapter-specific examples can be mapped. Each family is intentionally hypothetical and may be instantiated in several incompatible ways; the identifiers prevent counting the same imagined event as evidence in multiple chapters.

Table 21: Cross-chapter hypothetical case register. The comparison concerns a bounded activity with a real-world plausible baseline, not a platform feature or a reported outcome. Case identifiers are analytic cross-references only.

Case	Activity and existing alternative	Potentially decisive new condition	Observation capable of weakening the claim
E1	Education: develop a synthetic instructional example using an existing seminar or teaching repository	A consented cross-professional explanation or usable simulation setting not already available	Research proceeds equally well through the seminar, or a new interface adds documentation without additional feasible work
R2	Robotics: continue a non-clinical prototype through an existing engineering lab	Access to a genuinely available, suitably supervised making or simulation resource	The lab already meets the need; the proposed addition has no custodian or cannot lawfully be used
V3	Volunteer practice: optionally express a service-learning observation through an existing feedback channel	A low-burden, non-coercive route to a willing recipient for a non-sensitive improvement	Existing reporting works; extra demands or inadvertent disclosure harm the volunteer or service user
A4	Community art: adapt a consensually shared practice through a community venue	Permissioned workspace or an introduction that facilitates independent continuation	A community group already provides equivalent access; visibility measures fail to capture tacit creative work
S5	Open software: maintain and adapt an independently hosted public tool	Missing attribution, version or handover conditions that a small link or steward can actually supply	Ordinary code hosting already preserves the necessary trace; unpaid upkeep outweighs the incremental benefit
C6	External circulation: bring a legitimately shareable artifact to an appropriate outside recipient	A new discoverable, audience-appropriate route with a qualified reviewer or user	Exposure changes without a qualified encounter, lawful uptake, or support; outreach cost displaces creators' work

The labels E1–C6 are *case families*, not six mutually exclusive populations or six stages through which every creation must pass. One student's educational robot may involve E1, R2, and C6; its appearances across those families should be linked by a shared, permissioned account of a single trajectory when appropriate, rather than treated as three independently observed benefits. Conversely, V3 must not be redefined as a research project simply to make its outputs comparable with E1. For each instantiation, the analyst identifies both the *minimum viable Commons difference* and the best available alternative, including an ordinary agreement, an existing staff channel, or no new infrastructure. Existing arrangements need not be ideal to be credible, but the comparator must be capable of carrying out the stipulated activity under the stated practical and normative conditions.

At the level of relational reality, the cases refer to possible differences in who could act, with what skills and resources, through which relations and at whose cost. Their manifestations can include a simulation test, a documented resource handover, a voluntarily supplied account, an independently signed decision, or an external recipient's scoped feedback. These traces do not settle the ultimate ontological nature of value and may fail to reveal unrecorded creative continuation. A refusal to disclose a practice, a patient's protected record, or a disputed attribution may therefore leave a case *unresolved* or *legitimately uninspectable*; it does not justify assuming inactivity. The case register distinguishes a potentially valuable outcome from the evidence that would support a narrower proposition about a given intervention's additional role.

Comparison also requires attention to *time and distribution*. A route might become visible immediately, but usable resources may arrive later or not at all; maintenance obligations may outlast a creator's formal participation. At the same observation horizon, one actor can gain a permitted option while another loses staff time or independent access. The time frame, the affected actors, and the feasible activity domain therefore belong in every completed EvalCase rather than in a pooled success count. The reg-

ister's purpose is to clarify such distinctions before comparing possible explanatory advantages, not to establish that any of the six cases occurred. Chapter 17 specifies the corresponding evidence and adjudication protocol.

A cross-case identity convention is necessary where trajectories branch, actors change roles, or a practice belongs to several case families. The letters E1–C6 designate question families, whereas an individual assessment requires a separately declared trajectory or episode linkage, the creative activity under consideration, the affected actor, and the specific observation window. Related instances need not share an outcome: for example, an engineer's simulated robot, a community group's educational workshop using its design, and a subsequent hospital proposal may each have distinct rights holders, beneficiaries, purposes and decision-makers. When lawful linking is not possible, the analyst reports separate, possibly dependent episodes with an unresolved relationship rather than inventing either a common project or statistical independence. The minimum record should admit testimony, supervised observation and material practices alongside version-controlled artifacts, with a legitimate option not to document sensitive or voluntarily private work. This makes the activity register usable for community art and voluntary service rather than privileging technical repositories. Cross-family classification is descriptive: an E1–R2 overlap does not make two records independent replications or establish the same causal effect in teaching and robotics. A comparison must retain the actual unit of analysis, its exposure to a proposed Commons support arrangement, and any resource interference between cases. If one shared custodian's time is diverted from A4 to R2, treating the two as independent success stories would conceal an important loss.

16.10 Temporal Comparison, Adaptation, and Bounded Institutional Alternatives

A configuration is not a one-time procurement decision. A minimal resource pointer may become useful enough to deserve a named curator; a productive engineering group may later need insured facilities; a community programme may lose its volunteers; an external repository may change its terms of service; and an institutional permission may expire. Conversely, a well-established platform may become obsolete when public alternatives improve. The partial field evolution relation in Equation (32) can describe candidate continuations for conditions, practices, and bounded evidence. It does not determine which institutional design will be optimal or legitimate. Actual transitions must be interpreted from the actions of competent parties and their available resources at particular times.

Historical comparison must retain the epistemic limits introduced in Chapter 15. Equation (36) distinguishes a past occurrence from its later documentation, while Equation (37) asks which alternative activities were plausibly feasible from a contemporaneous standpoint. Applying those distinctions to Table 20 avoids two mistakes. First, a researcher cannot infer that a project would certainly have succeeded with a Commons simply because it succeeded later elsewhere. Second, present-day enthusiasm for a historical innovation does not establish that a hospital once had the funds, rights, safety conditions, or legitimate authority required to support it. Recovered evidence can revise a design judgment without rewriting the institution's actual past permissions.

Consider three alternative historical developments of the same fictional robot concept. In one, the student has an independent laboratory, the software is published, and no Commons intervention changes what can be done. In another, no safe facility exists, and a modest university introduction opens a legitimate new simulation opportunity without involving clinical care. In the third, an impressive prototype draws attention but no maintainer accepts the costs of physical custody, so discontinuation is preferable to unrecorded storage or unsupervised testing. These are distinct counterfactual branches, not observed outcomes of an evolutionary computation. A field model that retroactively calls all three "successful evolution" would have no discriminating value. Its claims must instead specify which feasibility, recognition, rights, or maintenance relation actually differs between cases.

Selection environments may also change because influential participants can shape visibility and entry requirements. An elite laboratory may capture the new interface while a less visible accessibility practice loses support. A portal requiring polished technical documentation may suppress contributions grounded in local service knowledge. The presence of many collaborators should therefore be inter-

puted alongside the ability of others to enter, decline, contest decisions, and continue independently. The comparison of configurations has to retain plural reasons for participation and a legitimate right not to contribute. Governance can mitigate a capture risk through alternative channels or periodic reconsideration without pretending that an algorithm can discover a universally fair allocation of attention (Fricker, 2007; Ostrom, 2005).

16.11 Consolidated Design Implications and the Next Evaluation Problem

The six illustrative configurations support a conditional design position rather than a general recommendation to create a new platform. Where an existing public resource, laboratory, hospital department, or community institution already provides the requisite legitimate opportunity at acceptable burden, there may be no additional Commons infrastructure to build. Where a meaningful gap remains, the smallest useful intervention may be a discoverable resource, an invitation to dialogue, a safe and voluntarily shared sandbox, a route to qualified external evaluation, or a narrowly scoped historical pointer. Each addition has different costs and authority requirements. Creative infrastructure can enable individual work without producing collective activity; collective activity can evolve without needing legal incorporation; institutional recognition can arise outside the Commons; and continued circulation can be valuable even if no resource returns to its origin.

The comparison retains the possibility of more developed arrangements. If several practices repeatedly depend on shared workshop capacity, responsible custodians may agree that an equipment service is warranted. If a new dissemination route creates recurrent rights and maintenance questions, a standing coordination function may become useful. Such changes should follow identifiable needs, properly accepted responsibilities, and evidence of added value, not an assumption that successful Commons mature into larger organisations. Conversely, an interface that duplicates a university service, displaces a confidential procedure, requires compulsory extra volunteer work, or lacks a viable steward should be redesigned, suspended, or omitted. These are not merely financial objections; they bear on autonomy, legitimacy, safety, and the future feasibility of valuable activities.

The six configurations and E1–C6 activity families are not empirical results. They specify a common set of comparisons that Chapter 17 tests for additional feasible opportunities, credible circulation, legitimate permissions, asymmetric burdens and rival explanations. A concise register or existing institution may prove sufficient. The limited design conclusion is that a Commons can be specified *without selecting its final organisation in advance*, while making continued support contingent on actual need, responsible stewardship and revisable evidence.

17 Design Evaluation, Failure Mechanisms, and Theoretical Revision

This chapter develops a critical evaluation method for the evolutionary field-governance approach proposed in this paper. The preceding chapters identify possible relations among creative practices, access to resources, voluntary cooperation, external circulation, competent institutional decisions, and the stewardship of future opportunities. Chapter 16 then constructs contrasting institutional configurations and a shared cross-case register, including cases in which existing arrangements are sufficient. The outstanding problem is evidentiary: *which observable differences would justify a Commons interface, which failures would disconfirm a proposed mechanism, and which findings would require a change in the theoretical account itself?* A configuration that is internally coherent can still be unnecessary, ineffective, inaccessible, unsafe, or too expensive to maintain. An elegant relational description does not establish an effect. The purpose of evaluation is accordingly to compare bounded creative activities and the conditions that support them, while allowing explanation, design, and even the proposed Commons to be rejected.

This approach draws on, but is not identical to, established design-science evaluation, institutional comparison, and evaluation of complex interventions. Hevner et al. (2004) distinguish the construction of artifacts from the evidence required to assess their relevance and performance. The updated complex-intervention guidance of Skivington et al. (2021) explicitly treats context, programme theory, uncer-

tainty, feasibility, outcomes, and economic considerations as recurring evaluative concerns. Knowledge-commons comparison similarly requires attention to participants, resources, governance and outcomes rather than assuming that collective institutions are intrinsically superior (Frischmann et al., 2014a; Ostrom, 2005). The distinctive, still untested, proposal developed here is a joint examination of *situated creative feasibility, historically conditional value circulation, non-transferable normative competence, and actor-specific reproductive burdens*, including the possibility that their relations have been represented incorrectly. It is a proposed methodology for theory–practice co-development; the present paper reports neither a Commons implementation nor measured institutional improvement.

17.1 Bounded Evaluation Objects and Credible Institutional Comparators

A defensible comparison begins with a *work activity*, not with the total feature count of a platform. For a student developing a synthetic robotics simulation, the bounded activity could be obtaining a lawful non-clinical test environment and an appropriate engineering review. For an educator, it might be testing an accessible instructional prototype without access to any identifiable patient information. For a community artist, it might be finding a permitted venue and a willing co-creator. A volunteer’s ordinary service shift is not, merely because it takes place in a university hospital, an obligation to invent or publish anything. Such distinct activities demand different evidence, resources, time horizons, rights, and potentially different evaluators. Aggregating them into a generic variable called “innovation” would obscure the explanation being tested.

The relevant comparator is a credible and sufficiently capable *feasible existing alternative*, rather than an artificially impoverished “no support” condition. The comparator should be selected and justified before outcomes are interpreted; the analyst should subsequently test sensitivity to other plausible alternatives, rather than choosing the most favourable baseline after observing the Commons case. Candidates include a functioning university laboratory, academic seminar, research-support office, library catalogue, student society, existing hospital volunteer or safety-reporting procedure, public code or knowledge repository, community workshop, or an ad hoc relationship established directly between willing participants. A minimal alteration to one of these arrangements, such as a maintained cross-reference or a named contact, is also a comparator. The Commons alternative must be specified with comparable realism: a proposed discovery interface without a funded steward is not equivalent to a functioning service. Where existing arrangements can fulfil the activity safely and at acceptable burden, *no new Commons interface* is a valid, sometimes preferable, decision.

For a bounded activity p , actor or affected group s , context c , and observation interval $[t_0, t_1]$, let d denote the proposed field configuration and b an actual or credible baseline. Each comparison requires a *case key*, fixed before judging results:

$$\kappa := \langle s, p, c, [t_0, t_1], \mathcal{A}^{\text{cand}}, \iota \rangle. \quad (39)$$

Here $\mathcal{A}^{\text{cand}}$ is a common, explicitly bounded domain of candidate activities, distinct from subject actions $\mathcal{U}_{c,t}$ in Equation (4) and from resource custodians $\mathcal{U}^d$ in Equation (38); ι identifies the relevant episode or trajectory under disclosure and linkage conditions the subjects and competent custodians permit. The identity p includes the activity’s operational scope: a synthetic robotics simulation and a live hospital test do not become the same activity through shared authorship or design files. The key does not require disclosing personal identifiers or linking a trajectory where doing so is not legitimate. Where context, activity, or observation horizon cannot be matched, the case must be stratified or reported as partly/non-comparable rather than treated as a null effect. A proposed *evaluation dossier* extends the design-case description of Equation (38) by recording that bounded comparison and its uncertainty:

$$\text{EvalCase}_\kappa(d, b) = \langle \text{DesignCase}_{c,t_0}(d), \text{Base}_{c,t_0}(b), \mathcal{I}, \mathcal{O}, \mathcal{K}, \mathcal{Z} \rangle. \quad (40)$$

Here the proposed configuration and baseline are described at the shared starting date t_0 ; their subsequent conditions, including resource expiry, role exit, rights changes, and custodian availability, are observed over $[t_0, t_1]$ instead of presumed constant. This is a comparison of changing support arrangements, not

two static catalogues. The dossier keeps the same κ across both configurations; its outcome statements must specify the relevant event time, assessment time, source standpoint, and affected actor. Here $\mathcal{I}$ specifies the information and opportunities for accessing it made available under both alternatives; $\mathcal{O}$ specifies outcomes and their evidence sources; $\mathcal{K}$ identifies applicable normative and material constraints and their competent reviewers; and $\mathcal{Z}$ records selection effects, uncertainty, time limits, and plausible rival explanations. The baseline description **Base** includes existing maintenance and permissions, not merely software or physical assets. This is an *analytic record*, not a prescribed electronic registry or a declaration that a person or facility is authorised. Cases lacking comparability on decisive access conditions should be reported as non-comparable rather than assigned an invented numerical effect.

When possible, the designer should hold the activity definition, observation horizon, resource eligibility, and evidentiary opportunities sufficiently similar that a difference can plausibly be attributed to the proposed interface. Matching does not require identical hospital contexts or suppress legitimate differences between people. It requires specifying the differences, especially initial privilege, professional networks, prior experience, disability-related accessibility needs, custodial capacity, and willingness to contribute. In settings where these cannot be matched, a qualitative process comparison or explicitly conditional scenario may be more defensible than a causal estimate. A hypothetical dossier can reveal logical mistakes, but cannot substitute for observations of an actual participant's choices or of an institution's decisions. Even a prospective matched comparison needs to examine *selection*: more motivated or better connected creators may be more likely to use the proposed interface. Common stewards, shared equipment, and informal professional referrals can also create *interference* between nominal cases, such that one actor's treatment changes another's baseline. Where the study cannot establish a credible identification strategy, it should report descriptive contrasts and plausible mechanisms without naming their difference an estimated causal effect.

17.2 Three Levels of Relational Analysis and the Limits of Evaluation Evidence

The three-level generative relational discipline determines what an evaluation can legitimately claim. At the *ontological level*, an observed difference in tool use does not settle the ultimate nature of value, institutions, subjects, or causality. The approach suspends that commitment. At the *relational level*, access conditions, usable skills, historical obligations, trust, material custody, and institutional capacities may make some activities possible and foreclose others. These relationships are the proposed explanatory objects, and their effects may differ over time and across subjects. At the *manifestation level*, logs, proposals, interviews, artifact versions, reports, invoices, and recorded decisions provide fallible and incomplete ways of observing some relevant processes. They do not reproduce the relational reality without interpretation.

In particular, the number of proposed projects, downloads, registered members, grant referrals, or issue comments is an inadequate primary measure of creative capability. More entries may reflect duplicate work, mandatory reporting, an unusually active subset of already privileged creators, or additional unpaid documentation. They might also indicate authentic new activity, but that conclusion requires corroboration. Conversely, a valuable improvement in independent learning may occur with no new Commons proposal and with a creator electing not to disclose the work. Evaluation should not penalise legitimate non-disclosure or infer failure from the absence of a trace. When records were never created or cannot lawfully be inspected, their absence is not evidence that the historical activity did not occur.

The distinction between *event time*, *record time*, and the later conditions of interpretation developed in Chapter 15 remains essential. A successful robot prototype documented years later cannot be used to claim that the proposed Commons made a prototype feasible at the earlier date. The bounded historical alternatives expressed in Equation (37) are hypotheses supported by contemporaneously obtainable evidence, not reconstructed certainty. Likewise, the dissemination states in Equation (19) and the scoped institutional decisions in Chapter 11 should not be treated as empirical successes merely because a positive route or review entry exists. The appropriate question is whether a qualified recipient understood, evaluated, adopted, or declined an expression, and what evidence supports each specific transition.

A common evaluation vocabulary should make room for *supported*, *contradicted*, *unresolved*, and *not observable under authorised access*. These are evidence statuses, not grades of persons or automatic legal determinations. In a hypothetical record, “unresolved” may be the correct answer even when an attractive design story suggests a positive effect. “Not observable” can be a consequence of privacy or legitimate nondisclosure rather than a deficiency to be remedied through additional surveillance. The analyst should state the observation process, the parties whose information was sought, the material refused or inaccessible, and the remaining uncertainty. In this way, the evaluation method is itself subject to the epistemic limits that the paper attributes to Commons infrastructure.

17.3 Normative Admissibility, Patient Safety, and Non-Substitutable Constraints

A comparison of benefits is meaningful only after distinguishing what is legally and institutionally possible from what is merely attractive to the evaluator. A public educational simulation and a robot demonstration in a patient area cannot be treated as two projects competing on a common popularity score. The first may be undertaken independently under appropriate resource and intellectual-property conditions; the second may implicate patient safety, clinical operations, space use, equipment custody, staff duties, privacy, insurance, and local law. Patient consent to an activity, a research ethics review, an engineering assessment, and an operational decision by an authorised institution have different objects. One cannot be substituted for another. Chapter 14 established this normative boundary, and the proposed evaluation respects it as a condition of comparison, not as a scalar penalty offset by a sufficiently large expected benefit.

Let a be a proposed activity with specified jurisdiction, purpose and intended use u . A comparative study needs both the time t for which a decision is claimed to apply and the assessment time τ at which evidence is inspected. A small *normative-evidence record* is more appropriate than a single purportedly universal approval code:

$$\text{NormRecord}_{c,t;\tau}(a, u) := \langle \text{Scope}, \text{Sources}, \text{Effective}, \text{ClaimStatus}, \text{Inspectability} \rangle. \quad (41)$$

Here **Scope** identifies the activity, jurisdiction, person or role, use and required kind of review; **Sources** identifies the alleged determinations and their competent issuers; and **Effective** preserves any relevant validity and expiry dates. The evidence-based **ClaimStatus** may be supported, contradicted, disputed or unresolved for each *specified* proposition. **Inspectability** separately distinguishes properly inspectable evidence from information that cannot legitimately be examined for this purpose. A controlling prohibition and a decision reserved to a different competent authority are recorded as different scope conditions, not as low scores. A determination issued after t may clarify an earlier claim but cannot be presumed effective at t . This analytical record neither makes an institutional decision nor certifies that the listed sources together constitute a valid permission; that judgment remains with the relevant authorities under the actual rules of the jurisdiction.

The normative gate is not an optimisation target. A comparative claim of a favourable Commons effect does not overcome a documented prohibition, invent a research exemption, authorise access to patient data, or convert a volunteer’s prior consent into consent for an additional project. Conversely, ordinary independent activity should not be made subject to an invented Commons approval process merely because the topic relates broadly to hospitals. A hospital’s safety and incident-response pathways, a university’s applicable research governance, and a creator’s rights may already establish the appropriate boundary. A new Commons interface is evaluated for how accurately it respects and communicates these boundaries, not for its capacity to replace their competent decision makers.

Care is also needed about *who carries the costs of restraint*. If an unsafe activity is suspended, that result may protect patients and staff even while reducing one student’s immediate opportunity to experiment. The loss should be recognised, but it does not justify transferring risk to patients. Where there is a feasible alternative, such as a synthetic dataset, non-clinical simulator, or unrelated authorised laboratory, the design inquiry should examine that route independently. A model which calls a prohibited clinical experiment “generative” because it increases projected artifact output fails the normative test

irrespective of its estimated scientific value. A model which treats the lack of hospital approval as proof that no independent educational value is possible fails for a different reason: it conflates scopes of activity and authority.

17.4 Plural Evaluation Dimensions and Actor-Specific Effects

Evaluation should retain multiple dimensions without presuming that they are commensurable. For each situated actor or affected group, the inquiry can examine whether a feasible and legitimate creative activity became newly possible, whether the activity was actually chosen, whether an artifact or practice gained an appropriate circulation path, whether specialised recipients formed a supported evaluation, and whether future opportunities were sustained. It should separately assess legal and ethical constraints, maintenance commitments, distributional effects, and institutional operating costs. The feasible-activity set in Equation (29) and the opportunity comparison in Equation (7) already make the first distinction precise: adding a public catalogue item does not necessarily enlarge a particular person's feasible set.

We propose a *plural outcome profile*, rather than a field-wide “fitness” score:

$$\text{Profile}_\kappa(d \mid b) = \langle (\Delta^+\Omega, \Delta^-\Omega), \text{Work, Route, Recognition,} \\ \text{Reproduction, Burden, Autonomy, Evidence} \rangle_\kappa. \quad (42)$$

The paired components $(\Delta^+\Omega, \Delta^-\Omega)$ refer to the gained and lost feasible, properly permitted opportunities defined in Equation (7), evaluated for the same subject, activity domain, scope, and agreed assessment date. These are *theoretical* set contrasts unless a study offers independent evidence sufficient to classify the relevant alternatives; missing membership is not a zero or a negative finding. They are not cardinal effect sizes. **Work** records evidence of actual creative work and its independently defined outputs; **Route** concerns usable, lawful circulation opportunities; **Recognition** concerns scoped judgments by relevant recipients rather than generic attention; **Reproduction** concerns future ability to continue meaningful work; **Burden** concerns the resources and labour required; **Autonomy** concerns refusal, withdrawal, control over disclosure, and actual choice; and **Evidence** qualifies how confidently these dimensions can be interpreted. The profile is typed by subject, activity, context, and observation period, using the case key in Equation (39). Within that period, opportunity gains and losses are evaluated at declared observation dates t with a common activity domain $\mathcal{A}^{\text{cand}}$; they are not obtained by subtracting a baseline observed at graduation from a Commons condition observed months earlier. For longer-lived effects, assessors should distinguish immediate feasibility, delayed support, and later reproduction in a sequence of dated observations, with missing intervals indicated explicitly. Its entries may be ordinal, qualitative, disputed, or unavailable. The notation does not authorise mathematical summation across people or dimensions.

At least four affected standpoints must be kept visible when relevant. A *creator* may acquire a new educational or engineering opportunity yet receive no further resources. A *custodian or maintainer* may incur storage, staff, security, update, and administrative burdens even when another person receives credit. A *patient or service user* may bear distinct safety and privacy risks or enjoy improved service, whether or not they chose to join a creative project. An *external recipient* may independently gain access to useful knowledge, adopt a resource for a different purpose, or reject it after assessment. Effects need not travel back to the originating Commons and are not necessarily beneficial to all involved. A public-interest claim cannot erase adverse distribution merely because an aggregate outcome is labelled positive.

Temporal comparison matters for every profile component. A platform may initially make a task easier but later impose recurring compliance and metadata work. A student might gain a usable workshop for a semester but lose access at graduation; a documented conditional continuation policy could alter subsequent feasible choices, but only if a legitimate custodian accepts it and the resources are actually usable. Another creator may receive no direct return while outside recipients extend the work. These are not interchangeable outcome narratives. Resource reproduction must be examined for the entities and practices that depend on a resource, including those whose labour makes access and dissemination possible. A successful public repository with no person or funding available to maintain it is an unstable support condition, not necessarily a completed circulation achievement.

17.5 Comparative Identifiability and Opportunity-Set Uncertainty

A design comparison cannot infer a change in feasible opportunity merely from records of participation. The theoretical sets in Equation (7) are generally only partly observable. For a declared candidate activity domain, evaluators should first state a bounded *recognition rule*: which evidence would support feasibility and permission, which would exclude the activity, and which cases remain unresolved or cannot lawfully be observed. An individual's absence from a repository is not a negative observation about the person's capacity. Historical evaluations should use the hatted, evidence-qualified classifications in Equation (37), not treat them as if a perfect account of the true set had been recovered.

Two different tests are required. An *inferential* test can hold the case facts constant, present them in narrative, ordinary table, and typed record formats, and compare whether assessors correctly preserve uncertainty, identify permissions, and recognise maintenance obligations. A *causal or practical* test must instead establish whether the proposed arrangement changed what a creator could actually and legitimately do relative to a viable comparator, taking selection, existing resources, and displaced work into account. Success on the first test does not prove the second. For example, a perfect record of a robotics project's versions might improve audit accuracy while leaving the student's ability to obtain materials entirely unchanged.

The comparison also has an asymmetry which a single "added opportunity" variable would miss. A Commons interface may enable an engineer's public simulation but displace a volunteer's supported teaching activity through scarce staff time. The paired gain and loss sets should therefore be considered for *each affected subject*, together with distinct burdens, permissions, and time horizons. Reporting an unresolved effect is preferable to replacing absent information with a value of zero. These requirements identify conditions under which the proposed representational scheme can fail: if information-equivalent simple descriptions yield the same judgments at lower costs, or if the field arrangement does not change real feasibility, no added practical claim follows merely from the richer notation.

17.6 Cross-Case Evidence Protocol and Decision Statuses

The case families E1–C6 in Table 21 connect the earlier mechanism-specific illustrations to a single evaluative programme. A case family is not an observation, a dataset, or a representative sample. For each actual or expressly simulated instantiation, an assessor must fix the activity description, actors and affected nonparticipants, comparator, rights and safety boundaries, observation horizon, and the propositions being tested *before* evaluating the proposed field addition. Otherwise a robot that succeeds through a pre-existing laboratory could later be described as a Commons success merely because its creator visited a Commons page. A genuine alternative analysis would identify the laboratory's causal role and ask whether the new interface added anything.

The record structure in Equation (40) already provides an appropriate container; another universal platform schema is unnecessary. The information component $\mathcal{I}$ should identify what the assessor was entitled to know in each condition. The outcome component $\mathcal{O}$ must contain *separate proposition-specific judgments* about newly feasible work, continuity, dissemination, qualified reception, accepted support, and maintenance burden. The constraints $\mathcal{K}$ identify decisions that only authorised actors may make, while $\mathcal{Z}$ records rival explanations, the observation process, and unavailable or conflicting evidence. Linking the same creative trajectory across different families is allowable only when rights, participant wishes, and provenance support the link; the absence of a link is not proof of independent underlying events.

These judgments should not be compressed into a common "positive" label. *Supported* describes the evidentiary status of a stated claim, not that the whole configuration is beneficial. *Equivalent* requires credible evidence that the relevant activity conditions are materially comparable, whereas *indeterminate* denotes insufficient grounds to choose among gain, parity, and loss. *Not inspectable under legitimate access limits* is distinct from a researcher simply neglecting to collect accessible evidence. A clinically inadmissible activity is not rescued by a higher predicted benefit, and a simulated case may establish logical consistency without yielding an empirical opportunity comparison. The vocabulary supports later

Table 22: Proposed adjudication vocabulary for every E1–C6 case instantiation. Evidence and comparative outcomes occupy distinct columns; none of the entries represents a completed empirical finding.

Judgment	Permissible description	Inference deliberately excluded
Evidence for a scoped claim	Supported; contradicted; disputed; unresolved; or not inspectable under legitimate access limits	“No record” does not establish that no activity occurred; visibility does not establish authority
Comparative opportunity for an actor	Additional, equivalent, reduced, or indeterminate feasible-and-permitted activities, with source and horizon stated	No scalar welfare score or presumption that a gain for one subject offsets another’s loss
Institutional admissibility	Independently reviewed where required; unresolved pending the relevant decision; or excluded by an applicable constraint	A simulated positive outcome, favourable peer opinion, or project dossier cannot grant operational permission
Cross-condition comparability	Comparable at specified scope; partly comparable with declared differences; or not meaningfully comparable	An absent or legally unobservable baseline cannot be coded as equivalent or as a zero effect
Sustained value and upkeep	Separate observations of qualified use, continued feasibility, custodian acceptance, actual resources, and burden distribution	Dissemination, funding promises, and later citation do not by themselves prove generative reproduction

disagreement and revision rather than imposing a final ranking of participants, practices, or professional disciplines.

For illustration, an R2 synthetic robotics case might specify an available university engineering laboratory as the baseline and a Commons referral as the candidate addition. If the same supervised equipment, timeslot, and expert advice were already obtainable through the laboratory, the incremental-feasibility claim is unsupported even if a useful robot resulted. If the referral newly establishes access to a qualified independent simulation facility, that is a narrower potentially positive observation. Neither result establishes permission to test in patient areas. A V3 voluntary-feedback case could similarly show that a lightweight discussion route facilitates a new, willing conversation; if a functioning volunteer feedback channel already suffices, adding another form may be redundant. A participant’s refusal to submit extra work is not a failure of motivation to be corrected by stronger pressure. These paired interpretations illustrate why prospective assessment needs specific comparators and appropriate counterfactual humility.

A minimal research protocol would assemble independently authored case descriptions, preserve the same authorised fact set across narrative, ordinary register, and relational-dossier representations, and assess judgments against a reference rubric constructed without knowledge of which format generated the answer. Predeclared outcomes must include *inferential error* and *representation burden*, not only favorable classifications. Case authors should not score the very framework they have constructed without an independent check, and overlapping cases should be treated as potentially dependent rather than as six replications. Reviewers should record decision time, confidence, abstention, labour spent, and any privacy or duty conflict. For the separate practical-outcome question, the research would need actual access and feasible-work evidence, transparent selection and attrition, matched time horizons, and maintenance accounting. The two exercises should report their results in different tables. A relational format may improve classification accuracy without improving work; an inexpensive contact arrangement may improve work without justifying complex relational records. Both results can inform theory revision (Frischmann et al., 2014a; Skivington et al., 2021; Hevner et al., 2004).

The six families should also be compared on *their own evidentiary terms*. E1 and S5 may generate papers, datasets or commits, while A4 and V3 may consist of embodied skills, a privately shared observation, a temporary performance, or a deliberate decision not to engage. A common comparison asks whether a specified legitimate next activity became feasible and what burdens and constraints changed; it does not require each activity to produce the same measurable object. When consented first-person accounts or properly authorised contextual observation are unavailable, that limitation must be reported rather than filled with engagement proxies. Preserving non-disclosure may be an appropriate outcome.

For an activity that never enters a digital workspace, a false “zero contribution” code would make a repository-intensive field appear successful by construction.

A distinct cross-domain exercise can expose errors otherwise hidden within single-stage scores. An E1 teaching-material history or R2 robotics history may contain a dated creative trace, a lawful external referral, an informal favourable comment, a conditional funding decision, and an unresolved resource-access claim. Present the same documents to assessors through an ordinary narrative, a concise existing register, and the typed candidate-linkage account of Equation (23). For each proposed inference in Table 13, ask whether the facts establish the *specific* proposition, warrant an unresolved verdict, or rule it out. The reference rubric must be developed independently of the presentation mode and must not count plausible speculation as verified evidence. The study should predefine how to score correct abstention, unjustified approval inferences, mistaken refusals, and time spent, and should balance or randomise presentation order so that learning the case in one format does not unfairly benefit the next. Independent adjudicators should be masked to format where feasible; any disagreement about the reference answer is recorded as disagreement rather than converted into a definitive label. This tests whether linkage decreases false authorisations, mistaken recipient endorsements, misattributed creative causality and unfounded maintenance duties. Time, comprehension burden, privacy costs and the ability to abstain are equally relevant. A complex representation can reasonably lose to an accurate ordinary register.

A second exercise should deliberately make a necessary link inaccessible for a legitimate reason, such as a confidential patient report, a creator’s refusal to publish a community activity, or a protected collaboration agreement. An assessor who infers zero contribution or no historic relationship from the absent public link would make a different error from an assessor who correctly reports that the relationship is not inspectable for the specified purpose. The same distinction applies when it is only the version identity, decision date or resource expiry that remains unresolved. These exercises evaluate an *interpretive capacity*; they do not test whether an operational Commons should actually link such data. A later practical intervention study would separately require legitimate permissions, a credible matched baseline and evidence of feasible activity changes. This two-level design avoids the circularity of declaring that richer Commons records themselves generated the value they describe.

17.7 Failure Mechanisms, Visibility Bias, and Rival Explanations

The paper’s principal claims should be exposed to alternatives that may make the relational-field approach unnecessary or misleading. A resource directory may simply duplicate a library catalogue; a voluntary proposal interface may increase clerical labour without generating cooperation; a circulation dashboard may privilege publicly documented technical artifacts over tacit community knowledge; a widely adopted robot design may lack a financially viable custodian; an invitation to contribute may be experienced as coercive by students or volunteers whose status depends on institutional superiors. Each failure is a possible mechanism with a different explanatory implication. The evaluator should not classify all of them as undifferentiated “implementation barriers” to an otherwise ideal design.

Institutional redundancy is a particularly important rival explanation. Suppose an education researcher gains access to a synthetic training corpus through a new Commons pointer. If the corpus was already plainly accessible through an existing university portal and the researcher had already identified it, the Commons may have made no incremental contribution. The alternative account does not deny that research value was created; it denies the new platform’s causal role. *Selection into visibility* is another rival. If only highly motivated and well-networked creators use the new platform, the apparent higher productivity of Commons registrants might reflect their pre-existing capabilities. The design has not necessarily increased the feasible opportunities of a less connected actor. *Administrative displacement* occurs when an apparently free resource-routing service depends on invisible staff or volunteer labour, or when ordinary service-work responsibilities become entangled with extra contribution expectations.

Other failure mechanisms concern the circulation of value. A route can produce greater exposure but no qualified evaluation; a supportive academic review can fail to secure resources; funding may come with commitments that constrain creators without improving their practical capacity; public recog-

Table 23: Proposed discriminating tests for bounded creative activities. “Supported” requires specified evidence and comparison; the table contains no empirical results.

Proposed mechanism	Observations supporting an incremental account	Rival, null or adverse observation
Resource-enabled creation	A previously infeasible, permitted activity becomes practically feasible for the specified creator, with the enabling difference traced to the interface	Existing resources already suffice; added steps or cost reduce practical access
Problem articulation	A voluntary, appropriate route allows a question to reach a willing competent recipient without displacing existing safety channels	Existing direct contact suffices; the new route delays reporting or coerces disclosure
Creative continuity	A voluntarily maintained trace lets a later contributor resume permitted development that would otherwise have stalled	Standard version history already suffices; custodial labour exceeds the added capability
External circulation	A new appropriate recipient obtains enough lawful information to assess or reuse a contribution for a stated purpose	Exposure increases without meaningful discovery, comprehension, or qualified uptake
Support and reproduction	Accepted resources and actual custody extend the actor’s future feasible activities without hidden obligations	Only promises or grant publicity increase; creator autonomy or maintainer capacity declines
Evolutionary revision	New evidence leads to a justified change, narrowing, retirement, or replacement of infrastructure	Routine expansion continues despite contrary evidence; low-visibility needs remain excluded

dition may attract unsafe proposals for immediate hospital deployment. External value can be generated without return to the Commons, but the persistence of circulation pathways still requires adequate stewardship. These possibilities require separate evidence from creators, maintainers, receiving institutions, and affected service users. A positive outcome for a recipient cannot alone establish that the original creative trajectory was well supported, just as a project termination does not establish that the resources previously invested were meaningless.

The evaluation should include deliberate *negative and null cases*. A negative case can show an intervention reducing creative capacity, increasing risk, or transferring maintenance burdens to a vulnerable person. A null case can show comparable outcomes from a simple university laboratory register and a complicated Commons trace system, with the former cheaper to operate. A case of *missing evidence* differs from both: if an independent creator refuses to provide private records, no credible causal verdict may be possible. The ability to report such outcomes is a substantive test of epistemic discipline. A theory that reinterprets every failure as unobserved long-term generativity, or every absence of evidence as a hidden relational success, cannot be meaningfully contested.

A bounded set of discriminating propositions is set out in Table 23. Each proposition specifies an observable difference which would matter to the proposed field design and a rival or disconfirming explanation. The entries describe *proposed tests*, not results of field research. Their role is to make empirical disagreement possible before an evaluator encounters a favourable case and chooses the explanatory vocabulary after the fact.

17.8 Comparative Evidence, Prospective Study Stages, and Ethical Conditions

The methodological sequence should advance from low-risk, publicly grounded comparisons to more demanding studies only when the research questions and legitimate permissions justify them. A first stage can use public descriptions of universities’ existing resources, technical standards, documented repository affordances, published programme guidance, and established ethical principles. This yields an institutional map of *potential* interfaces and identified constraints. Its evidentiary scope is limited:

a published policy cannot demonstrate that local staff can administer a new programme, and public information cannot reveal private motivations or actual patient experience. Nor should published funding criteria be confused with the likelihood of a particular student's application succeeding. Documentary comparison provides an account of stated conditions rather than an evaluation of realised outcomes.

A second stage can instantiate the cross-case families in Table 21 as *matched hypothetical dossiers*. As specified in Section 17.6, assessors would compare information-equivalent ordinary prose, a concise register and a typed relational account under an independently established case rubric. Responses should identify authorised and unresolved transitions, actor-specific burdens, realistic alternatives and defensible abstentions. The exercise measures whether a representation changes the quality or cost of judgments under stipulated facts; it does not establish additional creative opportunities in actual institutions.

A third stage may use synthetic simulations to examine the sensitivity of competing field configurations to bounded variation in resources, participation, maintenance, delayed recognition, and loss of external interfaces. Simulation could expose, for example, a design that appears productive only when free custodial labour is assumed or when every published artifact reaches a qualified external recipient. These are useful falsification-oriented exercises when the assumptions, parameter ranges, selection rules, and outputs are available for criticism. Simulated probabilities should not be presented as actual rates of hospital cooperation, patient effects, or future funding success. The entities represented in an evolutionary computation should remain *candidate practices and support arrangements*, not individuals classified for removal or rewards according to an algorithmic fitness ranking.

Further research involving interviews, staff observations, patient or volunteer perspectives, organisational records, restricted datasets, prototype testing, or live institutional pilots would be *separate conditional stages*. Before proceeding, investigators would need to classify the proposed activity and jurisdiction-specific obligations: a public-document or wholly synthetic analysis, a health-related research study with human participants, reuse of identifiable health data, and an authorised operational pilot do not share a single universal approval procedure. For research in the CIOMS and Helsinki domains, participant consent or a properly reviewed modification or waiver, where applicable, is distinct from the legal basis for processing information and from permission for hospital operations (Council for International Organizations of Medical Sciences, 2016; World Medical Association, 2024, 2016). Any actual stage would require its own necessary institutional arrangements, independently determined ethical review where relevant, valid participation arrangements, confidential-information safeguards, rights to physical or digital resources, and safe facilities. Nothing in this paper constitutes a study protocol approved for implementation. One could eventually compare an authorised, bounded Commons addition with an existing institutional service while recording baseline capacity, professional workload, safety events, access inequalities, and longer-term stewardship. Where no such research is authorised, the legitimate result is to stop at conceptual, documentary, and synthetic evaluation. The complex-intervention guidance of Skivington et al. (2021) offers a useful established methodological precedent for revisiting context, stakeholder involvement, uncertainty, feasibility, and economic questions across research phases; the particular Commons test design remains a proposal developed in this paper.

Measurement choices require special care. A participant's self-reported satisfaction is one potentially relevant datum, not evidence that patient safety has improved; a project's apparent influence on public discourse is not an estimate of realised welfare; and the absence of complaints is not proof of a non-coercive culture. Where a comparative causal design is infeasible, process tracing or appropriately bounded qualitative evidence can still test whether claimed intermediate relations actually occurred. A favourable outcome should not automatically be attributed to the Commons when a laboratory, an independent mentor, or an external professional association supplied the decisive resource. Conversely, if the Commons merely makes an existing support opportunity easier to find, that narrower discovery contribution may be valuable, but should not be reported as the creation of the underlying resource.

17.9 Proportionality, Distribution, and the Decision Not to Build

Evaluation needs an explicit decision discipline, although it should not delegate that decision to a mathematical optimiser. Consider four candidate arrangements for a student's independently developed teaching tool: the existing university repository, a manually maintained cross-reference, a dedicated Commons submission portal, and a fully supported education–hospital cooperation programme. These alternatives have sharply different implications for staffing, participant expectations, authorisation, and potential audiences. If the researcher's need is met by an existing repository, the additional layers may provide no justified benefit. If a limited referral genuinely enables a voluntary discussion with a qualified educator, the cross-reference may be proportionate. If a project later requires recurring, authorised, supervised practical work, more institutional structure may become necessary. The larger structure is not intrinsically more evolved or more legitimate.

A plausible evaluative decision should explain at least five matters: (i) the specific unserved activity or constraint; (ii) the incremental opportunity which the proposed change credibly enables; (iii) the competent parties and independent permissions required; (iv) the people and organisations who have freely accepted ongoing maintenance, expense, and responsibility; and (v) the reason a simpler existing alternative would not suffice. The decision also requires notice of material uncertainty and foreseeable adverse effects. Where a need is disputed, public interests conflict, or the relevant holder of authority declines, additional consultation, refusal, or abstention may be the appropriate outcome. It would be misleading to encode these requirements as a single universally optimal ratio of “public value per unit cost.”

Resources and effects may be asymmetrically distributed. An interface can make an affluent laboratory more visible while failing to improve the opportunities of independent students. A distributed publication route can make an engineer's code accessible while imposing sustained unpaid accessibility work on a small community group. A robot prototype can attract recognition for its inventors while placing storage and safety obligations on staff who never volunteered to maintain it. Such arrangements should be compared by distinct affected parties rather than by netting an inventor's gain against a custodian's loss. Existing arrangements may also distribute costs unfairly; therefore “do not build” is not automatically the ethically preferable verdict. It is an alternative whose relative effects must be examined, including the costs of preserving the status quo and the possibility of making a modest adjustment within existing institutions.

Proportionality has an explicit temporal dimension. Some fixed expenses may be justified if a genuinely needed resource can be maintained for years; an initially cheap portal may become expensive when metadata, security, accessibility, and rights information deteriorate. A conditional post-participation access scheme should be judged not by how generous its policy sounds, but by whether custodians can support its actual permissions and whether the access is usable when needed. Periodic review may reveal that a formerly useful interface is now redundant because a public platform improved. In that case orderly closure, archiving, transfer of responsibilities, or support for independent continuation can be a positive result of field governance. Ending a module is not by itself evidence that the Commons failed, provided the consequences and obligations are responsibly addressed.

17.10 Theory Revision, Explanatory Competition, and Research Accountability

The final evaluative task is to specify how findings could revise the conceptual model rather than only adjust a proposed platform. One class of findings challenges a *design assumption*: for example, a proposal channel is unused because participants do not wish to submit ideas publicly. The appropriate response might be an optional private conversation or removal of the channel, not a claim that participants require stronger incentives. A second class challenges a *mechanism*: the theory predicts that a new dissemination pointer should increase qualified discovery, but matched cases show no such difference because professional recipients already rely on independent specialist networks. This may narrow the proposed circulation mechanism to contexts with a demonstrable discovery gap. A third class challenges the *analytical ontology or typology*: a real creative practice may combine material, tacit, and social forms in ways poorly represented by artifact-centred traces. The model might then require a revised conception

of trajectory, rather than an extra metadata field that leaves the relevant practice invisible.

A proposed theory–practice revision cycle therefore requires a traceable record of the initial claim, its intended scope, the chosen comparator, the evidence actually available, the rival explanation considered, and the disposition of the claim. Outcomes can include *retention with specified support*, *scope restriction*, *replacement by a simpler mechanism*, *temporary suspension for insufficient evidence*, and *rejection*. The research record should distinguish genuine model changes from new settings in which the original model remains applicable. If a simple project register performs equally well at identifying rights limits and contributors while consuming less time, the field-governance representation has not earned a general practical mandate. If an established design-science or knowledge-commons theory predicts the cases just as well, the proposed GR interpretation should acknowledge explanatory equivalence or articulate the narrower difference that remains worth testing.

The relevant standards include *discriminating implications* and protection against retrospective rationalisation. Before collecting evidence, the research should state which observations would contradict a mechanism, the relevant observation horizon, and the allowable reasons to declare a comparison undecidable. Afterward, contrary cases should not be dismissed merely because a hidden generative potential might someday be realised. The GR approach explicitly concerns relations across time, but long horizons do not suspend the obligation to formulate testable claims for bounded cases. A later beneficial consequence cannot be invoked as a universal guarantee that every earlier institutional decision was adequate. Nor does one disconfirming case establish that all relational analysis is false. Claims should be retained or restricted at the level where evidence is informative.

Gregor and Hevner (2013) provide a design-research perspective on knowledge contribution and its evaluation, while Hevner et al. (2004) already emphasise that designed artifacts need careful demonstration and assessment. The present manuscript adds the requirement that *the field's own support conditions, governance claims, and explanatory categories be revisable together*, without taking the existence of a new platform as proof that a theory succeeded. This formulation remains a methodological conjecture until evaluated against relevant alternatives. Researcher reflexivity matters because the proponent of a Commons may benefit reputationally from declaring it necessary. An independent review of adverse cases, maintenance demands, and the option of institutional non-adoption can help prevent the design from validating itself.

Discriminating observations for a bounded cross-record study. Consider a hypothetical educational robot whose first record is a public simulation, whose second record is a forwarded design note, and whose third is an institution's qualified response. Before comparing representational formats, investigators would declare the case key κ , the permitted facts each assessor may see, and the outcome questions: whether the same version and intended use are involved, whether reception occurred, whether a specified resource commitment was accepted, and which matters remain unknown. Ordinary prose, a simple dated register, and the proposed typed representation should face *the same fact set*; the richer format should not win merely because its test sheet reveals additional information. The measure is the accuracy of bounded judgments, including correct refusal to infer an approval from a referral. Costs include preparation, training, interpretation, updating, and unnecessary disclosure.

An independent practical study would then ask whether a new interface changed a subject's genuinely feasible, appropriately permitted creative activities compared with an adequately functioning alternative. Correct classification of the robot's version or institutional response may have no effect on the student's access to tools or collaborators. Conversely, a simple personal introduction may create an opportunity even when the typed format adds no accuracy. Negative results are analytically distinct: *equivalence* means no demonstrable additional effect at the tested scope, *harm* means a sufficiently supported loss or undue burden, *non-identifiability* means the available design cannot discriminate the alternatives, and *normative inadmissibility* means the contemplated activity or comparison is outside the relevant permitted scope. The last category is not a low numerical outcome. Reporting these distinctions would permit a finding that the relational representation is useful for one inference task while the proposed Commons institution itself is unnecessary.

17.11 Evaluation Programme and Limits of Inference

The programme connects initial feasibility, voluntary creative trajectories, external circulation, and stewardship through activity-specific comparisons. Their relations may remain unobserved, fail to form, or arise independently of any Commons interface. The E1–C6 register prevents illustrative reuse from masquerading as repeated confirmation; its individual cases cannot be pooled as a single hospital outcome. A Commons may help a trajectory without owning it, while another valuable trajectory may need no Commons at all.

The decisive inquiry is consequently comparative and conditional. For a clearly specified creative activity, does a proportionate, legitimate, maintainable interface enlarge the set of feasible opportunities or improve an independently meaningful relationship which existing arrangements cannot adequately support? What evidence establishes that difference, which parties benefit or bear costs, and under what historical conditions might the comparison change? A different answer may be appropriate for a publicly reproducible instructional example, a non-clinical robot simulation, an opt-in community art activity, or an intervention touching actual patient care. The theory cannot make those differences disappear by assigning a common label to their source institution.

The research presented so far does not demonstrate empirical effectiveness, universal portability, a lawful implementation in any particular jurisdiction, or superiority over existing Commons and institutional-design scholarship. It provides an organised set of conceptual distinctions, illustrative comparisons, formal records with limited interpretive roles, and a falsification-oriented programme for subsequent inquiry. Its practical implication is deliberately modest: begin with genuine activities, use existing institutions where they suffice, build only interfaces whose value and legitimate maintenance can be explained, and keep the surrounding theory open to correction. The unnumbered Conclusions consolidate this bounded contribution without representing the hypothetical configurations or future evaluation stages as accomplished results.

Conclusions

A university hospital brings together clinical care, professional education, research, technical practice, voluntary service, and public engagement, but the proximity of these activities does not itself constitute a Commons. Their participants have different purposes and obligations; their resources are subject to different conditions of access; and their possible contributions may be recognised by different audiences at different times. This paper has investigated a preliminary design response to those differences. Its central object is an *evolving generative relational field*: an arrangement of material, informational, interpersonal, and normative conditions within which persons may pursue legitimate creative activities, form or decline cooperation, continue prior work, and seek paths through which heterogeneous forms of value may be recognised and used. Such a field is neither a proposed replacement for existing university and hospital institutions nor a new body empowered to determine the value of every contribution. It is a possible configuration of enabling relationships whose justification remains dependent on context, evidence, legitimate permissions, and the availability of simpler alternatives.

The first contribution is an account of *institutional initialisation* without an imposed organisational end state. The design does not begin by postulating a comprehensive hospital innovation office or by demanding a predetermined number of volunteers, proposals, and projects. It asks whether a small collection of independently meaningful seed practices can already be carried out with an appropriate combination of capabilities, usable resources, voluntary interests, and constitutive norms. Education research, a non-clinical robot simulation, the refinement of public instructional material, and a community-based creative activity are different possible seeds, not units to be ranked by a universal scale of output. Their juxtaposition may create opportunities for new relationships, yet their independent continuance is also an intelligible outcome. The initial field must have enough substance to support actual work, but it need not prefigure its later disciplinary composition or internal organisation. As the analyses of Sections 5 and 6 indicate, a resource catalogue, a proposal form, or a repository is inadequate as a generative in-

frastructure when the relevant actors still lack the time, skills, materials, collaborators, permissions, or maintenance required to act.

A second contribution concerns the *historical independence and possible intersection of creative trajectories*. A contribution need not begin as an approved project or culminate in a hospital deliverable. An idea may become a sketch, a teaching method, code, a physical prototype, an interpersonal practice, or an artifact whose future uses diverge from the originator's intentions. Some work may be branched and recombined; some cannot be adequately represented by digital versions at all. A creator may leave, withdraw permission for a separately governed activity, or cease participation while an appropriately authorised artifact or practice remains available for further development. The resulting analysis treats the trajectory as a historically situated configuration of actions and relationships, not as a repository history that independently proves ownership, consent, validity, or institutional approval. Participation therefore need not become an obligation to supply unpaid research or continuous Commons maintenance. Neither the refusal to contribute nor the use of legitimately public resources without a measurable return is, by itself, evidence that the proposed field has failed.

The third contribution is a design account of *value circulation beyond the originating field*. The Commons would not be sufficiently generative if it offered opportunities to create artifacts and practices while leaving their creators unable to find appropriate audiences, competent reviewers, collaborators, or independent routes for further development. Yet a circulation path is not a guaranteed ladder of endorsement. A student's robot proposal might be useful for engineering education, remain unsuitable for hospital use, and later support an external technical collaboration. A volunteer-developed explanatory document might be adopted by another community, while the original hospital has no reason to change its own practice. Discovery, professional evaluation, recognition, lawful access, actual use, material support, and future creative capacity are different relations, each calling for its own evidence and, where relevant, its own competent decision-maker. This distinction also prevents the analysis from reducing value to academic publication: software, physical prototypes, service practices, artistic works, educational methods, and social arrangements can circulate through different networks. The field may provide lightweight pathways for describing, translating, routing, and continuing such creations while relying on existing university offices, open platforms, professional communities, public organisations, or external institutions to perform the functions they are already capable of performing. It neither owns those external relations nor requires the benefits to return to their starting point.

These three contributions meet a fourth concern: *stewardship and the reproduction of generative conditions*. Recognition can attract attention without yielding usable resources; a funding promise can remain ineligible for a particular creator; a publicly celebrated project may continue only because an uncompensated maintainer bears the hidden cost. The proposed design thus distinguishes an opportunity to undertake a creative activity from the accomplishment of that activity, its reception by others, and the subsequent ability of different parties to create again. A period of access after a participant's formal role ends may help preserve legitimate creative possibilities, but such access must be scoped to the resource, permitted use, responsible custodian, available capacity, and applicable conditions. Prior contribution is not a general entitlement to patient information, clinical systems, premises, or other protected facilities. Conversely, the value of a Commons should not be assessed only by its outward outputs while ignoring whether its infrastructure can be responsibly maintained or closed. Where maintenance cannot be supported, orderly archiving, transfer to an existing custodian, reduction of functionality, or termination may preserve more of the legitimate value than continued expansion.

The term *evolutionary field governance* brings these relationships into a common analytical horizon, but it should not be read as an instruction to optimise human contributors. Its candidate objects of variation and retention are possible practices, interfaces, support arrangements, and revisable conventions. Historical action can alter the field that later action encounters: a new teaching tool may make a different collaboration feasible; an established dissemination route may attract creators with new purposes; repeated resource demands may necessitate a different form of custody. The same process may produce exclusion, premature technical lock-in, unequal visibility, or path-dependent maintenance obligations. Consequently, the continued existence, popularity, or growth of a practice establishes neither

its public value nor its normative legitimacy. Hospital safety, privacy, rights, professional responsibility, and genuinely voluntary participation remain independent conditions. Emergent arrangements can influence institutional deliberation, but no sequence of informal practices can confer a permission held by an external competent authority. The field's normative boundaries are partly revisable through legitimate procedures; they are not made optional by the vocabulary of emergence.

The generative relational interpretation helps formulate these questions without asserting an ultimate ontology of value or social relations. At the *ontological* level, the fundamental status of subjects, values, and relational structures is left open. At the level of *relational reality*, the inquiry concerns historically constituted arrangements that may actually expand, constrain, redirect, or erode subjects' feasible creative activities. At the level of *manifestation*, it examines situated proposals, design records, artifacts, evaluations, resource commitments, and narrated outcomes as partial evidence. A recorded proposal does not prove an unobserved motivation, a public release does not prove recognition, and a claimed permission does not issue its own authorisation. These distinctions underpin the analytical records developed throughout the paper, including the creative-opportunity comparisons, scoped design dossiers, and subject-specific evaluation profiles. The records are aids to reasoning under incomplete information. They do not constitute a mandatory information system or a machine-readable legal judgment.

This proposed synthesis is situated within established scholarship rather than advanced as a discovery of cooperation, institutional emergence, or commons governance for the first time. Research on common-pool institutions and institutional diversity (Ostrom, 1990, 2005), knowledge commons (Frischmann et al., 2014a), organisational routines (Nelson and Winter, 1982), and evolutionary governance (van Assche et al., 2014) already explains important elements of cooperation, rules, institutional development, and historical selection. The present paper's more specific candidate addition is the joint treatment of *designed initial viability*, *heterogeneous and independently motivated creative trajectories*, *external value circulation*, and *the changing conditions of future generation*, with explicit separation between those relationships and the authority to admit an activity into hospital operations. Whether this combination has explanatory or practical value beyond existing theories and ordinary institutional tools is an open comparative question. The mechanisms of common-resource governance, peer production, routine evolution, knowledge translation, and professional value assessment remain attributable to their established literatures; the present paper proposes a constrained joint design interpretation, not their original discovery. More detailed notation is not, by itself, a reason to prefer it.

The design scenarios developed here are conceptual and hypothetical. They do not report the creation of a Commons at a named university hospital, recruitment of volunteers or patients, clinical deployment of a robot, access to identifiable health data, institutional endorsement, receipt of funding, or the measurement of improved outcomes. They offer no universal legal prescription. The prospective research programme would initially compare public materials, ordinary institutional arrangements, and information-equivalent synthetic cases using one cross-case register of bounded creative activities. Repeated examples across chapters are not independent empirical observations. The proposed protocol keeps uncertainty visible and recognises each affected party's costs and autonomous choices. Improved accuracy in reading a typed record, even if later demonstrated, would not itself establish that deploying the Commons increases feasible creative opportunities or benefits people in practice. Later field observation, interviews, interventions, or work with protected resources would require separate ethical, legal, institutional, and professional arrangements as applicable. Evidence supporting a narrowly useful interface might justify limited development; evidence of no additional opportunity, unclear effects, unauthorised practices, unfair burdens, or inferior performance against a realistic existing alternative could require restriction, replacement, non-adoption, or cessation. Such results would also bear on the explanatory claims of the proposed relational framework, not merely on a particular software or organisational design.

The practical horizon is accordingly one of *proportionate enabling conditions and revisable responsibility*. A university hospital Commons may be most meaningful where distinct creators already have reasons to act, yet lack a legitimate resource interface, a durable means of continuing their work, or a credible route to an appropriate outside audience. Elsewhere, an ordinary laboratory, library, volunteer

office, open repository, professional association, or community network may provide sufficient support with fewer new obligations. The possibility of creating a new Commons should not displace that comparative judgment. By treating the field as an arrangement whose resources, practices, recognition paths, and stewardship can change with experience, this inquiry proposes a way to study the conditions in which new routes of value creation might arise without predetermining who must travel them, where they must lead, or whether they must remain in operation. Its contribution is a bounded research and design programme, open both to further development and to correction by the practices and institutions it seeks to understand.

References

- Andrew Abbott. Sequence analysis: New methods for old ideas. *Annual Review of Sociology*, 21:93–113, 1995. doi: 10.1146/annurev.so.21.080195.000521. Primary journal publisher record.
- Linda Argote. *Organizational Learning: Creating, Retaining and Transferring Knowledge*. Springer, 2 edition, 2013. doi: 10.1007/978-1-4614-5251-5.
- Sherry R. Arnstein. A ladder of citizen participation. *Journal of the American Institute of Planners*, 35 (4):216–224, 1969. doi: 10.1080/01944366908977225.
- W. Brian Arthur. Competing technologies, increasing returns, and lock-in by historical events. *The Economic Journal*, 99(394):116–131, 1989. doi: 10.2307/2234208. Original paper on competing technologies under increasing returns; cited as a theoretical analogy, not university-hospital evidence.
- Carol Lee Bacchi. *Analysing Policy: What's the Problem Represented to Be?* Pearson, Frenchs Forest, NSW, 2009. ISBN 9780733985751. URL <https://digital.library.adelaide.edu.au/items/12cc098d-24b2-4b3e-832e-d6aaf62acd1d/full>.
- Carliss Y. Baldwin and Kim B. Clark. *Design Rules, Volume 1: The Power of Modularity*. MIT Press, 2000. ISBN 9780262024662. doi: 10.7551/mitpress/2366.001.0001. URL <https://direct.mit.edu/books/monograph/1856/Design-Rules-Volume-1The-Power-of-Modularity>. Modular design as comparative design theory; not an empirically validated blueprint for public-service Commons.
- Yochai Benkler. Coase's penguin, or, linux and the nature of the firm. *Yale Law Journal*, 112(3):369–446, 2002. URL <https://yalelawjournal.org/article/coases-penguin-or-linux-and-the-nature-of-the-firm>.
- Yochai Benkler and Helen Nissenbaum. Commons-based peer production and virtue. *Journal of Political Philosophy*, 14(4):394–419, 2006. doi: 10.1111/j.1467-9760.2006.00235.x.
- Geoffrey C. Bowker and Susan Leigh Star. *Sorting Things Out: Classification and Its Consequences*. MIT Press, 1999. ISBN 9780262269070. doi: 10.7551/mitpress/6352.001.0001. URL <https://direct.mit.edu/books/monograph/4738/Sorting-Things-OutClassification-and-Its>. Normative and political consequences of institutional classifications, not direct evidence of outcomes in a hospital research Commons.
- Paul R. Carlile. Transferring, translating, and transforming: An integrative framework for managing knowledge across boundaries. *Organization Science*, 15(5):555–568, 2004. doi: 10.1287/orsc.1040.0094.
- E. Gil Clary, Mark Snyder, Robert D. Ridge, John Copeland, Arthur A. Stukas, Julie Haugen, and Peter Miene. Understanding and assessing the motivations of volunteers: A functional approach. *Journal of Personality and Social Psychology*, 74(6):1516–1530, 1998. doi: 10.1037/0022-3514.74.6.1516.

- Council for International Organizations of Medical Sciences. *International Ethical Guidelines for Health-Related Research Involving Humans*. Council for International Organizations of Medical Sciences, Geneva, 4 edition, 2016. doi: 10.56759/rgxl7405. URL <https://cioms.ch/publications/product/international-ethical-guidelines-for-health-related-research-involving-humans/>. In collaboration with the World Health Organization; normative guidance.
- Creative Commons. Attribution 4.0 international public license: Legal code, 2013. URL <https://creativecommons.org/licenses/by/4.0/legalcode.en>. Version 4.0 legal code, accessed 11 October 2026; grants only specified rights under its terms, not institutional authority or third-party rights.
- Edward L. Deci and Richard M. Ryan. The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4):227–268, 2000. doi: 10.1207/S15327965PLI1104_01.
- Ron Eglash. An introduction to generative justice. *Teknokultura: Revista de Cultura Digital y Movimientos Sociales*, 13(2):369–404, 2016. doi: 10.5209/rev_TEKN.2016.v13.n2.52847. URL <https://revistas.ucm.es/index.php/TEKN/es/article/view/52847>. Original journal article; page span, year and DOI verified against publisher record in October 2026.
- Ron Eglash, Kwame P. Robinson, Audrey Bennett, Lionel Robert, and Mathew Garvin. Computational reparations as generative justice: Decolonial transitions to unalienated circular value flow. *Big Data & Society*, 11(1), 2024. doi: 10.1177/20539517231221732.
- European Research Executive Agency. Horizon Europe: Who should apply. European Commission, European Research Executive Agency guidance, 2026. URL https://rea.ec.europa.eu/horizon-europe-who-should-apply_en. Online guidance checked 12 October 2026; year refers to access, not a verified publication date; consortium conditions and exceptions are call-specific.
- Miranda Fricker. *Epistemic Injustice: Power and the Ethics of Knowing*. Oxford University Press, 2007. doi: 10.1093/acprof:oso/9780198237907.001.0001. Primary publisher metadata consulted; testimonial and hermeneutical injustice are Fricker’s concepts.
- Brett M. Frischmann, Michael J. Madison, and Katherine J. Strandburg. Governing knowledge commons. In Brett M. Frischmann, Michael J. Madison, and Katherine J. Strandburg, editors, *Governing Knowledge Commons*, pages 1–44. Oxford University Press, 2014a. doi: 10.1093/acprof:oso/9780199972036.003.0001.
- Brett M. Frischmann, Michael J. Madison, and Katherine J. Strandburg. Conclusion. In Brett M. Frischmann, Michael J. Madison, and Katherine J. Strandburg, editors, *Governing Knowledge Commons*, pages 469–484. Oxford University Press, 2014b. doi: 10.1093/acprof:oso/9780199972036.003.0016. Early comparative cases do not yet establish general design principles.
- Archon Fung. Varieties of participation in complex governance. *Public Administration Review*, 66(s1): 66–75, 2006. doi: 10.1111/j.1540-6210.2006.00667.x.
- GitHub. About forks. GitHub Documentation, 2026. URL <https://docs.github.com/en/pull-requests/reference/forks>. Online documentation accessed 12 October 2026; describes independent forks and optional pull requests; not a copyright or institutional-authorisation statement.
- Shirley Gregor and Alan R. Hevner. Positioning and presenting design science research for maximum impact. *MIS Quarterly*, 37(2):337–355, 2013. doi: 10.25300/MISQ/2013/37.2.01.
- Jacob S. Hacker, Paul Pierson, and Kathleen Thelen. Drift and conversion: Hidden faces of institutional change. In James Mahoney and Kathleen Thelen, editors, *Advances in Comparative-Historical Analysis*, pages 180–208. Cambridge University Press, 2015. doi: 10.1017/CBO9781316273104.008. Publisher chapter record; distinguishes drift and conversion.

- Alan R. Hevner, Salvatore T. March, Jinsoo Park, and Sudha Ram. Design science in information systems research. *MIS Quarterly*, 28(1):75–105, 2004. doi: 10.2307/25148625. URL <https://aisel.ai/snet.org/misq/vol28/iss1/6/>.
- Albert O. Hirschman. *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*. Harvard University Press, Cambridge, MA, 1970. URL <https://books.google.com/books?id=Bwe3AAAAIAAJ>. Publication metadata verified against the Harvard University Press edition catalogued by Google Books.
- John H. Holland. *Adaptation in Natural and Artificial Systems: An Introductory Analysis with Applications to Biology, Control, and Artificial Intelligence*. MIT Press, 1992. ISBN 9780262581110. doi: 10.7551/mitpress/1090.001.0001. 1992 MIT Press edition; comparison with Commons initialization is an analogy, not a published hospital design test.
- Wanhong Huang. University hospital volunteer commons: Institutional mediation, relational proximity, and generative value circulation. Independent theoretical manuscript, R47 author typeset preprint candidate; no peer review or institutional adoption claimed, 2026.
- Lesley Hustinx, Ram A. Cnaan, and Femida Handy. Navigating theories of volunteering: A hybrid map for a complex phenomenon. *Journal for the Theory of Social Behaviour*, 40(4):410–434, 2010. doi: 10.1111/j.1468-5914.2010.00439.x.
- International Labour Organization. Manual on the measurement of volunteer work, 2011. URL <https://www.ilo.org/publications/manual-measurement-volunteer-work>. International statistical measurement guidance; not itself a binding volunteer-employment rule.
- International Labour Organization. Volunteer work, 2016. URL <https://www.ilo.org/resource/volunteer-work>. Published 14 April 2016; statistical definition of unpaid, non-compulsory volunteer work, not a comprehensive employment-law test.
- International Organization for Standardization. ISO 14721:2025: Space data system practices: Reference model for an open archival information system (OAIS). International Standard, Edition 3 (March 2025), 2025. URL <https://www.iso.org/standard/87471.html>. Publisher metadata and abstract reviewed; archival responsibilities are not general rights or hospital access permission.
- Steven J. Jackson. Rethinking repair. In Tarleton Gillespie, Pablo J. Boczkowski, and Kirsten A. Foot, editors, *Media Technologies: Essays on Communication, Materiality, and Society*. MIT Press, 2014. doi: 10.7551/mitpress/9042.003.0015. URL <https://direct.mit.edu/books/edited-volume/3021/chapter/82557/Rethinking-Repair>. Repair and maintenance as intellectual and social subjects, not a directly tested Commons intervention.
- Japan Science and Technology Agency. Research results optimal deployment support program (A-STEP). Official programme overview, 2026. URL <https://www.jst.go.jp/a-step/>. Programme information checked 12 October 2026; individual schemes, applicant qualifications and current calls differ; Japan-specific illustration, not a general Commons funding route.
- Barbara Levitt and James G. March. Organizational learning. *Annual Review of Sociology*, 14:319–338, 1988. doi: 10.1146/annurev.so.14.080188.001535. Original journal publisher record; routine-based, history-dependent organisational learning.
- James Mahoney and Kathleen Thelen, editors. *Explaining Institutional Change: Ambiguity, Agency, and Power*. Cambridge University Press, 2010. doi: 10.1017/CBO9780511806414. Cambridge publisher record; print and online publication dates differ.
- James G. March. Exploration and exploitation in organizational learning. *Organization Science*, 2(1): 71–87, 1991. doi: 10.1287/orsc.2.1.71.

- Richard R. Nelson and Sidney G. Winter. *An Evolutionary Theory of Economic Change*. The Belknap Press of Harvard University Press, Cambridge, MA, 1982. ISBN 9780674272286.
- OECD and Eurostat. *Oslo Manual 2018: Guidelines for Collecting, Reporting and Using Data on Innovation*. OECD Publishing, Paris and Luxembourg, 4 edition, 2018. doi: 10.1787/9789264304604-en. URL https://www.oecd.org/en/publications/oslo-manual-2018_9789264304604-en.html. Definition of innovation for measurement, including implementation; this is not a general test of moral or social value.
- OECD Council. Recommendation of the council on health data governance. OECD Legal Instruments, OECD/LEGAL/0433, 2016. URL <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0433>. Adopted 13 December 2016; international policy recommendation addressed to OECD adherents; not a universal legal basis for processing health data.
- Allen M. Omoto and Mark Snyder. Sustained helping without obligation: Motivation, longevity of service, and perceived attitude change among AIDS volunteers. *Journal of Personality and Social Psychology*, 68(4):671–686, 1995. doi: 10.1037/0022-3514.68.4.671.
- Open Source Guides Contributors. Best practices for maintainers. Open Source Guides, 2026. URL <https://opensource.guide/best-practices/>. Living practical guidance, consulted 12 October 2026; not evidence from a representative hospital sample.
- Organisation for Economic Co-operation and Development. *OECD Guidelines for Citizen Participation Processes*. OECD Publishing, Paris, 2022. doi: 10.1787/f765caf6-en. URL https://www.oecd.org/en/publications/oecd-guidelines-for-citizen-participation-processes_f765caf6-en.html. Guidance principally written for public officials and institutions; used comparatively for feedback and participation design, not as binding Commons law.
- Stephen P. Osborne, Greta Nasi, and Madeline Powell. Beyond co-production: Value creation and public services. *Public Administration*, 99(4):641–657, 2021. doi: 10.1111/padm.12718.
- Stephen P. Osborne, Madeline Powell, Tie Cui, and Kirsty Strokosch. Value creation in the public service ecosystem: An integrative framework. *Public Administration Review*, 82(4):634–645, 2022. doi: 10.1111/puar.13474.
- Elinor Ostrom. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press, 1990. doi: 10.1017/CBO9780511807763.
- Elinor Ostrom. *Understanding Institutional Diversity*. Princeton University Press, 2005. doi: 10.2307/j.ctt7s7wm. Institutional Analysis and Development framework; source metadata checked with the publisher-linked JSTOR record.
- Michael Quinn Patton. *Developmental Evaluation: Applying Complexity Concepts to Enhance Innovation and Use*. Guilford Press, 2011. ISBN 9781606238721. URL <https://www.guilford.com/books/Developmental-Evaluation/Michael-Quinn-Patton/9781606238721/summary>. First edition: paperback 2010, ebook 2011; copyright year 2011 in publisher-distributor listing; conceptual evaluation literature only.
- Ray Pawson and Nick Tilley. *Realistic Evaluation*. SAGE Publications, 1997. ISBN 9780761950097. URL <https://www.sagepub.com/shop/buy-a-book/realistic-evaluation-1-205276>. Realist evaluation’s philosophical ontology is distinct from the paper’s GR ontological suspension.
- Paul Pierson. Increasing returns, path dependence, and the study of politics. *American Political Science Review*, 94(2):251–267, 2000. doi: 10.2307/2586011. Original Cambridge University Press journal record; published June 2000.

- Andrea Saltelli, Gabriele Bammer, Isabelle Bruno, Erica Charters, Monica Di Fiore, Emmanuel Didier, Wendy Nelson Espeland, John Kay, Samuele Lo Piano, Deborah Mayo, Jr. Pielke, Roger A., Tommaso Portaluri, Theodore M. Porter, Arnald Puy, Ismael Rafols, Jerome R. Ravetz, Erik Reinert, Daniel Sarewitz, Philip B. Stark, Andrew Stirling, Jeroen van der Sluijs, and Paolo Vineis. Five ways to ensure that models serve society: A manifesto. *Nature*, 582(7813):482–484, 2020. doi: 10.1038/d41586-020-01812-9. URL <https://www.nature.com/articles/d41586-020-01812-9>. Commentary and normative modelling guidance, not an empirical trial of Commons planning infrastructure.
- William R. Shadish, Thomas D. Cook, and Donald T. Campbell. *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Houghton Mifflin, Boston, MA, 2002. ISBN 9780395307878. URL <https://books.google.com/books?id=bhLLmgEACAAJ>. Design requirements for credible causal claims, not an instruction to randomise non-negotiable rights or safety controls.
- Kathryn Skivington, Lynsay Matthews, Sharon Anne Simpson, Peter Craig, Janis Baird, Jane M. Blazeby, Kathleen Anne Boyd, Neil Craig, David P. French, Emma McIntosh, Mark Petticrew, Jo Rycroft-Malone, Martin White, and Laurence Moore. A new framework for developing and evaluating complex interventions: Update of medical research council guidance. *BMJ*, 374:n2061, 2021. doi: 10.1136/bmj.n2061. URL <https://www.bmj.com/content/374/bmj.n2061>.
- Software Heritage. SoftWare Hash persistent identifiers (SWHIDs). Software Heritage Documentation, specification version 1.6, 2021. URL <https://docs.softwareheritage.org/devel/swh-model/persistent-identifiers.html>. Version last modified 30 April 2021; consulted 12 October 2026. Describes stable identifiers for archived software objects, not permission to reuse them.
- Susan Leigh Star. This is not a boundary object: Reflections on the origin of a concept. *Science, Technology, & Human Values*, 35(5):601–617, 2010. doi: 10.1177/0162243910377624.
- Susan Leigh Star and James R. Griesemer. Institutional ecology, ‘translations’ and boundary objects: Amateurs and professionals in berkeley’s museum of vertebrate zoology, 1907–39. *Social Studies of Science*, 19(3):387–420, 1989. doi: 10.1177/030631289019003001.
- Susan Leigh Star and Karen Ruhleder. Steps toward an ecology of infrastructure: Design and access for large information spaces. *Information Systems Research*, 7(1):111–134, 1996. doi: 10.1287/isre.7.1.111.
- Susan Leigh Star and Anselm Strauss. Layers of silence, arenas of voice: The ecology of visible and invisible work. *Computer Supported Cooperative Work (CSCW)*, 8(1-2):9–30, 1999. doi: 10.1023/A:1008651105359. URL <https://doi.org/10.1023/A:1008651105359>. The visibility of work depends on social arrangements and indicators, rather than constituting a direct estimate of volunteer maintenance labour.
- Kathleen Thelen. *How Institutions Evolve: The Political Economy of Skills in Germany, Britain, the United States, and Japan*. Cambridge University Press, 2004. URL <https://www.cambridge.org/core/books/how-institutions-evolve/41C3108269725FA3AF2C4AE87A50685E>. Cambridge publisher book overview; historical analysis of gradual institutional change.
- Michel-Rolph Trouillot. *Silencing the Past: Power and the Production of History*. Beacon Press, Boston, 1995. ISBN 9780807043110. Original 1995 volume; bibliographic metadata verified against book records.
- UNESCO. Universal declaration on bioethics and human rights, 2005. URL <https://www.unesco.org/en/ethics-science-technology/bioethics-and-human-rights>. Declaration adopted in 2005; legal effect varies by jurisdiction and applicable legal instruments.

- U.S. National Science Foundation. Proposal and award policies and procedures guide (PAPPG 24-1): Chapter i, pre-submission information. NSF 24-1, effective 20 May 2024; with later policy supplements, 2024. URL <https://www.nsf.gov/policies/pappg/24-1/ch-1-pre-submission>. NSF official site lists PAPPG 24-1 as current with supplements NSF 26-200 (effective December 2025) and NSF 26-202 (effective January 2026); applicable solicitation and later notices must be rechecked; U.S.-specific illustration.
- Kristof van Assche, Raoul Beunen, and Martijn Duineveld. *Evolutionary Governance Theory: An Introduction*. SpringerBriefs in Economics. Springer, 2014. doi: 10.1007/978-3-319-00984-1. Print and electronic publication dates differ; the volume carries the 2014 copyright year.
- Eric von Hippel and Georg von Krogh. Open source software and the "Private–Collective" innovation model: Issues for organization science. *Organization Science*, 14(2):209–223, 2003. doi: 10.1287/or.sc.14.2.209.14992. Primary publisher record; evidence concerns open-source innovation, not specific hospital governance outcomes.
- Mark D. Wilkinson, Michel Dumontier, IJsbrand Jan Aalbersberg, et al. The FAIR guiding principles for scientific data management and stewardship. *Scientific Data*, 3:160018, 2016. doi: 10.1038/sdata.2016.18.
- John Wilson. Volunteering. *Annual Review of Sociology*, 26:215–240, 2000. doi: 10.1146/annurev.soc.26.1.215.
- World Health Organization. Patient safety incident reporting and learning systems: Technical report and guidance, 2020. URL <https://www.who.int/publications/i/item/9789240010338>. Published 16 September 2020; incident data require cautious interpretation.
- World Health Organization. Global patient safety action plan 2021–2030: Towards eliminating avoidable harm in health care, 2021. URL <https://www.who.int/publications/i/item/9789240032705>. Adopted by the 74th World Health Assembly; a global strategic framework, not itself domestic law.
- World Health Organization. Patient safety rights charter, 2024. URL <https://www.who.int/publications/i/item/9789240093249>. Published 16 April 2024; international normative guidance rather than hospital-specific authorisation or domestic law.
- World Intellectual Property Organization. Frequently asked questions: Copyright, 2026a. URL <https://www.wipo.int/en/web/copyright/faq-copyright>. Undated comparative explanatory page; year refers to access in October 2026, not confirmed publication date.
- World Intellectual Property Organization. Faqs: Technology transfer, 2026b. URL <https://www.wipo.int/en/web/technology-transfer/faq>. Public guidance page consulted October 2026; year denotes access rather than verified publication; ownership varies by jurisdiction, agreement, participant role, and kind of creation.
- World Medical Association. Wma declaration of taipei on ethical considerations regarding health databases and biobanks, 2016. URL <https://www.wma.net/policies-post/wma-declaration-of-taipei-on-ethical-considerations-regarding-health-databases-and-biobanks/>. Revised October 2016; specific professional ethical guidance for health databases and biobanks, not a general statutory rule for Commons research. The WMA described a further revision process in 2025–2026.
- World Medical Association. Wma declaration of helsinki: Ethical principles for medical research involving human participants, 2024. URL <https://www.wma.net/policies-post/wma-declaration-of-helsinki/>. October 2024 revision; professional ethical declaration, not itself universal domestic law.

World Wide Web Consortium. PROV-O: The PROV ontology. W3C Recommendation, 30 April 2013, 2013. URL <https://www.w3.org/TR/prov-o/>. Provenance interchange vocabulary; its qualified influence relations are not legal or ethical certificates.

World Wide Web Consortium. Data catalog vocabulary (DCAT) — version 3. W3C Recommendation, 22 August 2024, 2024a. URL <https://www.w3.org/TR/vocab-dcat-3/>. Metadata interoperability guidance for datasets and services; not a rule granting access or legal reuse rights.

World Wide Web Consortium. Web content accessibility guidelines (WCAG) 2.2. W3C Recommendation, revised 12 December 2024, 2024b. URL <https://www.w3.org/TR/WCAG22/>. Web-content accessibility guidance; does not guarantee accessibility for every person or every non-web medium.

Robert K. Yin. *Case Study Research and Applications: Design and Methods*. SAGE Publications, Thousand Oaks, CA, 6 edition, 2018. ISBN 9781506336169. URL <https://study.sagepub.com/yin6e>. Sixth edition has copyright year 2018 and library catalogues as 2018; the publisher's release listing gives September 2017 and its companion site October 2017. This entry follows the imprint/copyright year. Case design and rival explanations do not validate any hypothetical Commons configuration.