

Multilevel Commons: A Conceptual Framework for Qualifying and Governing Interdependent Shared Conditions

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ABSTRACT: Organizations and public institutions increasingly depend on conditions whose functions, dependencies and effects spill across the boundaries of individual assets, firms, jurisdictions and decisions. Research on commons, social-ecological systems, diagnostic approaches, polycentric governance and multilevel governance already explains many dimensions of collective action across scales. Starting from the broader conceptual and institutional proposal developed in the published working paper by Casale and Farrell, this article isolates a more specific question: when can an interdependent shared condition be qualified through a joint five-criterion threshold before its detailed governance architecture is specified? The Multilevel Commons (MC) proposal requires the joint occurrence of (1) a vital function, (2) propagation of effects beyond the initial decision perimeter, (3) a plurality of scales that cannot be governed separately, (4) structural insufficiency of a single actor or regime, and (5) dependence on thresholds, monitoring and shared responsibilities. Rather than claiming novelty for relational conceptions of commons, multilevel analysis, diagnostic reasoning or the expression “multi-level commons”, the article examines the specific qualification logic created by bringing these five criteria together. It also distinguishes qualification from the detailed design of governance arrangements without separating it from the governance requirements already embedded in the working paper: pertinent perimeters, thresholds, monitoring, distributed responsibilities, public knowledge and stable civic participation. The argument is developed through conceptual boundary comparison and three illustrative applications—to aquifers, metropolitan air quality and selected artificial-intelligence configurations—before considering management implications, limitations and an empirical research agenda focused on operationalization, discriminant validity and inter-rater reliability.

KEY WORD: Multilevel Commons, commons, multilevel governance, polycentric governance, interdependence, common good, socio-technical systems, shared responsibility.

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I. INTRODUCTION

Many conditions essential to collective life do not coincide with a single property title, organizational boundary, administrative competence or spatial perimeter. Water cycles, atmospheric processes, knowledge infrastructures and supply chains are obvious examples: causes, benefits, costs, knowledge and responsibilities may be distributed across several different boundaries at once. The relevant question is therefore not only who owns or manages a resource. It is how a condition is produced, used, degraded, preserved and governed when the dependencies and effects at stake extend beyond the perimeter in which the initial decision was made. None of these examples is automatically a Multilevel Commons condition; the five-criterion threshold developed below is meant precisely to distinguish qualifying cases from other important but differently structured problems.

Casale and Farrell’s published working paper *Beni comuni multilivello* introduced Multilevel Commons (MC) as both a selective conceptual category and a broader proposal for governing interdependent shared conditions [1]. The proposal does not add a new class of goods to public goods, local commons, global commons or private goods. It instead asks when material or immaterial socio-ecological and socio-technical conditions connected to the continuity of collective life, care for the living world and sustainable coexistence require a different form of qualification because their effects extend beyond the initial decision perimeter. The working paper sets out five joint criteria for that qualification and links the resulting conditions to pertinent perimeters, thresholds, monitoring, distributed responsibilities, stable civic participation and changes in the institutions and language of public decision-making [1].

The proposal sits within a field that already has a long history. Neither multilevelity nor the expression “multi-level commons” is new. Commons research has extensively examined institutions for collective action [2]; scholarship on multilevel social-ecological systems has explored functional interdependence and the limits

of single-level governance [3]; and a substantial literature addresses the multilevel governance of commons [4,21–23]. The expression itself also appears in work on supply chains, climate commoning and biodiversity [5–7]. These antecedents do not remove the possibility of an original contribution, but they require that any such claim be made with precision.

The claim made here is therefore deliberately specific. The article does not assert lexical priority, nor does it present relational commons, multilevel analysis, diagnostic reasoning or diagnosis-before-design as new. Within the broader MC proposal, it examines whether an interdependent shared condition can be qualified through a specified joint five-criterion threshold and what follows from that qualification for governance and management. Focusing on this operation does not reduce MC to qualification alone; it makes one of the proposal's defining moves available for systematic comparison with neighboring literatures. That move is analytically distinct from, although potentially complementary to, diagnosing the causal configuration of a social-ecological system or designing institutions for a commons problem already under analysis.

Three questions guide the discussion. RQ1 asks which joint conditions must be present for a socio-ecological or socio-technical condition to qualify under the Multilevel Commons framework. RQ2 asks how this framework relates to, and differs from, public goods, common-pool resources, social-ecological systems and their diagnostic frameworks, polycentric governance, and multilevel or multidimensional approaches to commons governance. RQ3 then considers the governance and management implications that follow from qualification.

The management relevance lies in the fact that organizations routinely use, transform and depend on ecological, cognitive, infrastructural and institutional conditions that extend beyond firm boundaries. When organizational action is intertwined with governments, communities, infrastructure operators or other firms, internal optimization and bilateral stakeholder relations may capture only part of the problem. MC is intended for the narrower set of situations in which all five criteria are jointly satisfied. The argument therefore moves from conceptual positioning and boundary testing to governance and management implications, illustrative applications and a research agenda.

II. CONCEPTUAL RESEARCH DESIGN

A. Nature of the contribution

This is a conceptual article, not an empirical validation study. Its aim is to clarify and delimit a construct through structured synthesis and comparison with neighboring concepts. Jaakkola argues that the literatures mobilized in conceptual work should perform a clear role in constructing, contrasting or adapting the focal idea rather than accumulating as an undifferentiated review [8]. MacInnis likewise distinguishes several forms of conceptual contribution—envisioning, explicating, relating and debating—that help make explicit what a conceptual paper is intended to add [9].

The Casale-Farrell working paper is the primary source for the MC construct examined here [1]. It is read alongside five bodies of literature: (1) public goods, commons and common-pool resources; (2) scale, cross-scale dynamics and social-ecological systems; (3) diagnostic approaches to complex social-ecological problems; (4) polycentric and multilevel governance; and (5) work on the common good, responsibility and management in interdependent systems. These literatures serve different purposes—as antecedents, comparators, boundary markers or bridges to management. They are not used to retroactively validate the five criteria. The terminological clarifications and management implications developed in this article are analytical elaborations for the present discussion and do not alter the definition, five joint criteria or broader institutional trajectory of the working paper.

B. Method of conceptual boundary testing

Boundary testing is carried out in three moves. First, MC is compared with neighboring constructs to determine whether it performs a distinct qualification function. Second, each of the five criteria is restated as both a diagnostic question and an exclusion rule, making clear that importance, complexity, shared relevance or actor plurality are not enough on their own. Third, the framework is applied to three stylized situations—an aquifer and recharge system, metropolitan air quality and selected artificial-intelligence configurations. These are not empirical case studies. Their role is to test whether the criteria can separate plausible qualifying configurations from cases that should remain outside the category. The approach is consistent with the anti-panacea and diagnostic tradition in social-ecological systems research, while using diagnosis here for the narrower purpose of MC qualification rather than general SES analysis or institutional matching [24–26].

The review is purposive and theory-driven rather than systematic or exhaustive. Sources were selected because they bear directly on definition, boundary conditions, methodological antecedents or management implications. Particular attention was given to foundational works on neighboring constructs, prior uses of “multi-level commons”, and framework or review contributions dealing with scale, SES diagnosis, polycentric or multilevel governance, responsibility and management. The originality claim must therefore remain bounded

by the literatures considered here and open to revision if a functionally equivalent qualification framework is identified elsewhere.

III. FROM COMMONS TO MULTILEVEL INTERDEPENDENCE

A. Public goods, common-pool resources and the common

Samuelson's public-expenditure model is a formal starting point for the economic treatment of collective-consumption goods and their provision [10]. Deneulin and Townsend show that public goods, global public goods and the common good raise related but distinct questions about provision and collective well-being [11], while Cogolati compares global public goods and commons as different legal lenses for development [12]. The distinction matters for MC because qualification does not turn on the economic characteristics of a good or on the scale at which a benefit is supplied.

Ostrom's *Governing the Commons* showed that common-pool resources can be governed through institutional arrangements that do not fit a simple state-versus-market opposition, drawing attention to rules, monitoring and the conditions under which users organize collective action [2]. MC draws heavily on that institutional lesson, but its focal object is not limited to resources characterized by difficult or costly exclusion and subtractability. Relational and political approaches similarly resist treating the common as an intrinsic property of a thing [13], while Rodotà's work provides an important legal critique of an isolated understanding of property and common interests [14].

The same caution applies to immaterial commons. Hess and Ostrom treat information as a common-pool resource and extend institutional analysis to scholarly information [48]. MC therefore does not derive its originality from the simple fact that knowledge or information can be governed as commons. The question posed here is narrower: whether a broader socio-technical or socio-ecological condition on which collective life depends satisfies all five criteria. Social value alone is not enough to bring a private asset, public infrastructure, ecological resource or digital system within the framework.

B. Scale, level and cross-scale dynamics

Scale is another area in which loose terminology can easily blur important distinctions. Gibson, Ostrom and Ahn distinguish scales from levels and argue for greater terminological precision [15]; Cash and colleagues examine cross-scale and cross-level interactions in governance and information [16]; Cumming, Cumming and Redman identify mismatches between management arrangements and ecological processes [17]; and Young analyzes vertical interplay among scale-dependent regimes [18]. Across this literature, the recurring lesson is that larger-scale and nonlocal problems often require layered arrangements, learning and adaptation rather than a universally appropriate level of governance [3,19,20,27].

To keep these distinctions clear, this article uses scale for a dimension along which a phenomenon can be organized or observed, and level for a position within that scale [15,16]. Spatial or territorial, temporal and jurisdictional dimensions may therefore contain several levels. Ownership arrangements and epistemic authority are handled more cautiously, as intersecting regimes or dimensions rather than as scales in the same technical sense. The established label *Multilevel Commons* is retained, but the third criterion is read as requiring relevant scales, levels and intersecting regimes to be connected whenever treating them separately would obscure the functional unity of the condition. This is a terminological refinement for the purposes of the present article, not an additional criterion; it preserves the proprietary and epistemic dimensions already present in the working paper while adopting the more restrictive scale/level vocabulary of the comparator literature [1].

Some of the closest precedents are found in the 2008 *International Journal of the Commons* special issue "Commons in a Multi-level World". Berkes framed the problem around scale, institutional linkages and multilevel governance involving state, private and civil-society actors [21]. Armitage connected common-property theory, resilience and political ecology in an account of adaptive multilevel governance [22], and Poteete later distinguished multi-level institutions, multi-scale linkages and broader multidimensional linkages, warning against conceptual stretching [23]. These contributions leave little doubt that multilevelity and multidimensional linkage are established concerns in commons scholarship. The possible contribution of MC must therefore lie elsewhere: in the specific role assigned to the five criteria as a joint qualification threshold.

C. Diagnostic approaches and the anti-panacea tradition

A further methodological neighbor is the diagnostic tradition in social-ecological systems research. Ostrom's 2007 framework organizes variables in nested tiers in order to move beyond institutional panaceas and analyze complex, changing and cross-scale systems [24]. Ostrom and Cox extend this multi-tiered approach for comparative SES analysis and questions of institutional fit [25], while Cox presents diagnosis as a sequence of increasingly specific questions and pays particular attention to multilevel causation [26].

For that reason, methodological novelty is not the basis of the claim advanced here. SES diagnostic approaches are designed to unpack causal configurations, interactions and outcomes and to inform context-sensitive institutional responses. The five-criterion threshold is used for a more specific purpose: deciding whether an interdependent shared condition falls within the *Multilevel Commons* framework at all. Detailed

governance design remains a further task, even though thresholds, monitoring, coordinated responsibility and multilevel institutional capacity are already integral to the broader MC proposal [1].

D. Polycentric and multilevel governance

Polycentric and multilevel governance illuminate different, but complementary, aspects of the institutional problem. Ostrom's account of polycentric systems emphasizes multiple centers of decision-making, experimentation and action at different scales [28]. Carlisle and Gruby distinguish the attributes of polycentric systems from enabling conditions such as institutional fit and adaptive capacity [29]. Multilevel governance, by contrast, focuses on how authority is dispersed and organized across jurisdictions and task-specific arrangements; Hooghe and Marks distinguish different types of such arrangements [30]. Adaptive-governance research adds a further emphasis on learning, bridging organizations and connections across levels [31].

This body of work is among the closest comparators for MC [4,21–23]. It examines institutional linkages, adaptive multilevel governance and multidimensional relations around commons problems. MC enters the discussion at a different point: it asks whether multilevel interdependence is one of the elements that qualifies the shared condition in the first place. The distinction is analytical, not oppositional. Once a condition is qualified, polycentric and multilevel governance may provide important resources for designing the institutional response.

E. Common good, directionality and responsibility

The common good raises a different question, one of directionality. Mazzucato argues for moving beyond a market-fixing orientation toward shaping collective goals and organizing collaboration around the common good [32]. Her work with Zaqout applies this perspective to water as a systemic challenge requiring collective and economy-wide responses [33]. MC does not treat common good and commons as interchangeable categories. Common-good reasoning instead becomes relevant when the direction and quality of outcomes must be judged after a condition has been recognized as structurally shared.

Responsibility raises a related issue. Young's social-connection model addresses forward-looking responsibility in structural processes that cannot be reduced to individual guilt or fault [34]. Jasanoff's technologies of humility, from another perspective, stresses the limits of prediction and control and the need to open decision-making to participation under uncertainty [35]. Both bodies of work help explain why distributed causation need not end in distributed irresponsibility, although neither provides the MC qualification criteria themselves.

IV. DEFINING MULTILEVEL COMMONS

A. Unit of analysis: from the isolated good to the shared condition

The analytical object in MC is an interdependent shared condition, not an isolated good. In the published formulation, Multilevel Commons designate material or immaterial socio-ecological and socio-technical conditions connected to the continuity of collective life, care for the living world and sustainable coexistence, whose functional unit does not coincide with a single cadastral boundary, municipality, sectoral competence or project duration [1]. What must be maintained is therefore a condition of continuity—water quality and recharge, breathable air or ecological connectivity, for example—rather than an asset considered in isolation. The same logic can apply to knowledge and decision infrastructures when reliable access or contestability performs a vital collective function. This does not turn information commons into a new claim of originality [48]; it simply subjects the wider socio-technical condition to the same five criteria.

This shift in the unit of analysis does not erase the public/private distinction. A component may remain privately owned while its use or effects become relevant to a wider interdependent condition. The working paper expresses this point by arguing that private use can enter a sphere of shared responsibility when it affects conditions on which collective life depends [1]. Alexander's account of the publicness of private-law values provides a useful legal background for resisting an isolated view of property [36]. The point is relational, not confiscatory: ownership remains legally relevant, but it does not by itself determine the perimeter of the condition or settle the subsequent allocation of legal, ethical or managerial responsibilities.

B. The five joint qualification criteria

The framework is deliberately selective. A condition qualifies as Multilevel Commons only when all five criteria converge. They are cumulative rather than alternative: complexity, strategic importance or the presence of many stakeholders is not enough on its own [1].

Table I: Joint Qualification Criteria for Multilevel Commons

<i>Criterion</i>	<i>Published baseline</i>	<i>Diagnostic question</i>	<i>Exclusion rule</i>
1. Vital function	A condition necessary to the continuity of collective life.	Would the loss or serious degradation of the condition undermine the continuity of collective life in the relevant context?	Important, strategic or profitable is not by itself sufficient.
2. Propagation of effects	Effects of use, degradation or preservation extend beyond the place of the initial decision.	Do relevant effects travel beyond the initial decision perimeter in space, time or across affected actors or populations?	A consequence contained within the original perimeter does not satisfy the criterion.
3. Plurality of scales	Relevant scales cannot be governed separately without losing the unity of the problem.	Do ecological processes, spatial/territorial and temporal scales, jurisdictional levels, and intersecting ownership or epistemic regimes need to be connected to preserve the functional unity of the condition?	Several administrations or stakeholders alone do not establish multilevelity.
4. Insufficiency of a single actor or regime	No single actor, level or governing regime is sufficient to secure continuity.	Does maintaining the condition structurally require complementary or non-substitutable contributions from multiple actors or regimes, such that no single actor or regime can adequately integrate or substitute for all critical functions required for continuity?	Routine division of labor, temporary capacity gaps or a mere preference for participation are insufficient; dependence on multiple actors or regimes must be structural.
5. Thresholds, monitoring and shared responsibilities	Protection requires verifiable limits, monitoring and shared responsibilities.	Is continuity of the vital function structurally dependent on explicit and verifiable limits, minimum conditions or triggers, longitudinal monitoring and a coordinated allocation of responsibility so that the condition can be known and maintained over time?	The mere existence of governance instruments, or a generic appeal to cooperation or good intentions, is insufficient.

Source: author's elaboration from the five criteria published in Casale and Farrell [1]. Diagnostic and exclusion questions are refinements developed in the present article.

Across domains, a threshold is understood here as an explicit and justifiable limit, minimum condition or trigger linked to the continuity of the vital function. Reaching, crossing or violating it must alter the required governance response, and its status must be observable or otherwise verifiable. Thresholds may be quantitative, qualitative or procedural, but they cannot be reduced to aspirations or generic statements of good practice. The five criteria define the framework; the indicators, evidentiary standards and context-specific judgments used to operationalize them remain open to empirical development.

C. Why the criteria must remain joint

Requiring all five criteria is what prevents the category from expanding until it covers every complex or socially important problem. A condition may be vital while its effects remain confined to one perimeter. It may extend across several scales while a single actor or regime is still structurally capable of maintaining it. Many actors may be involved without the condition performing a vital collective function, and cross-boundary effects may occur without the relevant scales being genuinely non-separable. The reverse is also possible: a geographically localized aquifer may satisfy the full threshold if recharge, extraction, pollution, supply, ecosystem functions and long-term observation connect actors and scales that cannot be treated separately without distorting the condition. No criterion, taken alone, is sufficient.

The distinction between criteria 4 and 5 is particularly important. Criterion 4 asks whether the actors, capabilities and control points required for continuity are structurally distributed in a way that no single actor or regime can adequately substitute for the others. Criterion 5 addresses a different issue: the governance functions needed to keep the vital condition observable and maintainable over time, including explicit limits or triggers, longitudinal feedback and coordinated responsibility. Actor plurality and governance requirements are related, but they are not the same property.

The fifth criterion may at first appear circular, since it refers to governance functions while the framework is being used to qualify the condition. The working paper avoids that problem by distinguishing the existence of a fully developed governance regime from the structural need for limits, monitoring and

coordinated responsibility. A condition does not qualify simply because regulation or monitoring already exists. The relevant question is whether continuity of the vital function depends on limits, minimum conditions or triggers that can be specified or revised, on longitudinal observation and on coordinated responsibility across complementary or non-substitutable actors or regimes. Institutional recognition nevertheless remains a public process. A complete architecture need not exist at the outset, but some initial capacity for coordination, monitoring and threshold-setting is required if the interdependence is to become knowable, contestable and governable [1]. Qualification can therefore be distinguished from detailed governance design without being detached from institutional recognition altogether.

V. CONCEPTUAL BOUNDARIES AND ORIGINALITY

A. Boundary with adjacent constructs

Table II places MC alongside the main neighboring constructs by comparing the analytical work each one performs. The aim is not to rank these traditions, but to show more clearly where MC relies on established insights and where the five-criterion threshold introduces a distinct act of qualification.

Table II: Conceptual Boundaries of Multilevel Commons

<i>Construct</i>	<i>Primary analytical focus</i>	<i>Core question</i>	<i>Boundary with MC</i>
Public goods	Collective-consumption goods and provision	How should goods with collective-consumption characteristics be understood and provided?	MC is not defined by the economic characteristics used to classify public goods; it applies a separate condition-based qualification framework [1,10–12].
Common-pool resources	Resource characteristics, appropriation and institutions	How can users govern common-pool resources under specific institutional conditions?	MC draws on the institutional lesson of CPR research but applies a separate threshold to broader socio-ecological or socio-technical conditions [1,2].
Social-ecological systems	Coupled social-ecological interactions	How can linked social and ecological systems, interactions and sustainability outcomes be analyzed?	SES frameworks provide a general analytical structure; in this article, MC is used to ask the specific question of whether an interdependent shared condition meets the five-criterion threshold [1,3,27].
SES diagnostic approaches	Problem diagnosis across nested variables and levels	Which configurations and causes produce outcomes, and what institutional responses fit the diagnosed problem?	The present article does not base MC's originality on diagnostic reasoning; it examines a specified five-criterion threshold for the distinct qualification function of determining whether a condition falls within the MC framework [1,24–26].
Polycentric governance	Multiple decision centers	How can relatively autonomous centers interact as a governance system?	Polycentricity concerns governance architecture; MC first qualifies the shared condition through five joint criteria and, in the broader proposal, links qualification to governance requirements that may be organized polycentrically [1,28,29].
Multilevel governance	Distribution of authority	How is authority allocated or dispersed across levels?	MC begins with the condition and its cross-scale or cross-level relations rather than with the allocation of authority [1,30].
Commons in a multi-level world / multidimensional linkages	Scale, institutional and multidimensional linkages	How do multiple levels, scales, actors, institutions and linked processes shape commons governance?	These literatures already treat multilevelity and multidimensional linkages as substantive concerns; MC adds a distinct five-criterion qualification logic [1,21–23].

<i>Construct</i>	<i>Primary analytical focus</i>	<i>Core question</i>	<i>Boundary with MC</i>
Multilevel governance of the commons	Governance arrangements and interactions across levels around commons problems	How is commons governance organized across territorial and institutional levels?	A direct comparator: this literature starts from commons already under governance; MC incorporates multilevel interdependence into qualification and then develops governance implications from the qualified condition [1,4,21,22].
Prior “multi-level commons” uses	Commons operating at several levels	How do commons function at company/industry or climate-governance levels?	These uses establish terminological precedent; their definitions and purposes differ from the five-criterion MC framework [1,5–7].

Source: author’s conceptual synthesis.

B. A deliberately bounded originality claim

The originality claim is intentionally bounded. The article does not attribute to MC the invention of relational approaches to commons, multilevel analysis, diagnostic reasoning, nested frameworks, multidimensional linkages or the distinction between diagnosis and institutional design [13,15–16,21–27]. Nor does it claim lexical priority for the expression “multi-level commons” [5–7]. What the purposive review did not identify, within the comparator literatures examined, is a functionally equivalent framework that brings these five criteria together for the specific purpose of qualifying an interdependent shared condition. The contribution defended here lies in that conjunction and in the role assigned to it within the broader MC proposal.

The focus of this article is narrower than the full Multilevel Commons proposal. It concentrates on the qualification function because that is the point at which the construct can be most directly compared with neighboring frameworks; it does not imply that MC ends once a condition has been qualified. Existing literatures already explain much of the causal and institutional complexity of shared conditions [3,21–27]. The five-criterion threshold adds a prior question: do vital function, propagated effects, non-separable scales and levels, structural insufficiency of a single actor or regime, and dependence on thresholds, monitoring and coordinated responsibility converge in the same condition? When they do, the broader proposal links qualification to pertinent perimeters, monitoring, distributed and coordinated responsibilities, public knowledge, stable civic participation and institutional revision [1].

VI. GOVERNANCE AND MANAGEMENT IMPLICATIONS

A. From qualification to governance design

Once a condition has been analytically qualified and publicly recognized, the question becomes how its governance architecture should be specified in detail. This is a shift in the level of institutional design, not a separation between qualification and governance. The fifth criterion already requires thresholds, monitoring and shared responsibilities, and the working paper connects qualification to pertinent perimeters, public knowledge, stable civic participation and changes in the institutions of decision [1]. The subsequent design task is not claimed as an original sequence in itself; diagnostic approaches have long distinguished problem configuration from context-sensitive institutional prescription [24–26]. The working paper nevertheless gives the direction of travel: governance should be polycentric because no single decision center is sufficient, and heterogeneous because legal, scientific, technical, economic, organizational and civic forms of knowledge and action must be brought into relation [1]. The institutional architecture must therefore be fitted to the qualified condition rather than adopted as a general preference for decentralization or participation.

The working paper’s third thesis also makes clear that governance cannot be reduced to allocating functions among institutions. Publicly accessible knowledge, stable civic participation, monitoring, deliberation, verification and revision are part of the capacity through which an interdependent condition becomes visible and governable over time. In the socio-ecological domain, these functions are developed through the idea of ecological democracy [1]. The management implications explored here should therefore be read as an additional layer of the proposal, not as a substitute for its civic and democratic dimensions.

One practical consequence follows. The different functions of governance need not sit at the same level or inside the same institutional perimeter. Effects and knowledge may unfold across spatial or temporal levels that do not match the level at which authority, financing or implementation is located. Local authorities, basin institutions, national or supranational bodies, private organizations, communities and independent monitors may therefore perform different but connected roles. The design challenge is to make these interfaces, powers and responsibilities explicit without forcing them into a single level.

B. From external effects to the governance of interdependence

MC does not replace the economics of external effects; it changes the question asked of them. Pigou provides the classical welfare-economics account of divergences between private and social net products [37], while Coase complicates one-directional accounts of harm by emphasizing reciprocal effects, rights and transaction costs [38]. From an MC perspective, the further question is whether repeated, cumulative or distributed external effects reveal dependence on an underlying shared condition whose continuity must itself be maintained. An externality is therefore relevant, but never sufficient: all five criteria still have to be satisfied.

What changes is not a simple choice between ex post compensation and ex ante prevention. Economic and regulatory responses to external effects can themselves be preventive. The working paper's move from externalities to interdependencies is better understood as a change in the object and temporal horizon of governance: from correcting a discrete effect toward maintaining the condition from which that effect arises [1]. Where vital functions, propagated effects and relevant thresholds converge, compensation or internalization may remain necessary but cease to be sufficient. Prevention, monitoring, compatibility rules and revision become part of the ordinary work of maintaining the condition. Foster's account of metabolic rift offers an ecological antecedent for reading degradation through disrupted material and metabolic relations [39].

C. Shared but differentiated responsibility

Shared responsibility does not mean equal responsibility. Young's social-connection model distinguishes forward-looking responsibility for structural injustice from a liability model centered on blame or fault, and treats power, privilege, interest and collective ability as relevant parameters rather than as a formula for fixed shares [34]. Drawing on that insight without turning it into a liability rule, this article identifies several factors that future MC operationalization may need to consider: causal contribution where it can be established, decision power, access to relevant knowledge, benefits obtained, exposure to effects and effective capacity to prevent, correct or repair. "Shared responsibilities" is thus used as an umbrella term for responsibilities that may be distributed, differentiated and coordinated; it does not imply collective fault or automatic joint legal liability.

For managers, MC qualification does not automatically create a specific legal, ethical or managerial duty, nor does it determine the extent of one. What it does is make the differentiated allocation of responsibility an explicit analytical and institutional problem, consistent with the working paper's claim that impacts on common conditions enter a sphere of shared responsibility [1]. The content of particular duties still depends on the actor's concrete relationship to the qualified condition and on the applicable normative framework. Firms may matter because they control infrastructure, set technical standards, generate emissions, shape access to data, finance supply-chain configurations or hold capabilities needed to prevent degradation. Other organizations may contribute by monitoring, representing affected interests or implementing corrective measures.

D. Implications for organizations and management research

Management research already provides several ways of thinking beyond a narrow firm boundary. Scherer and Palazzo examine the changing political role of business where public and private governance functions intersect under globalization [40]. Whiteman, Walker and Perego argue that corporate sustainability needs stronger ecological foundations and greater attention to system-level boundary processes [41]. Ferraro, Etzion and Gehman emphasize participatory architectures and distributed experimentation as forms of robust action [42], while George and colleagues place societal grand challenges firmly within the domain of management research [43].

The additional move proposed by MC is to ask whether the organization is acting within, upon or through a condition that satisfies the five criteria. Where the threshold is not met, MC provides no independent basis for reclassifying the issue. Where it is met, the relevant unit of management analysis extends beyond the firm because organizational objectives are nested within a wider governance problem. This opens a set of questions for strategy, due diligence, innovation, risk management, data governance and performance measurement, especially where firms both depend on and modify the conditions in question.

VII. ILLUSTRATIVE ANALYTICAL APPLICATIONS

The three applications that follow are boundary tests, not empirical case studies. Their purpose is to show how the five criteria can distinguish a broadly important shared issue from a condition that plausibly falls within the MC framework. Any positive qualification in empirical research would still require context-specific evidence.

Table III: Illustrative Boundary Testing of the Five-Criterion Framework

<i>Illustrative condition</i>	<i>Why qualification may be plausible</i>	<i>Evidence required</i>	<i>What would prevent qualification</i>
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<i>Illustrative condition</i>	<i>Why qualification may be plausible</i>	<i>Evidence required</i>	<i>What would prevent qualification</i>
Aquifer and recharge system	Water availability or quality can be vital; extraction and contamination may propagate beyond plots and municipalities; hydrological and temporal scales, jurisdictional levels and ownership regimes may diverge.	Hydrogeological perimeter; dependence on the aquifer; propagation pathways; extraction/quality thresholds; actor competences; monitoring architecture.	If impacts remain contained and one actor can maintain the relevant condition under ordinary regulation, MC qualification is unnecessary.
Metropolitan air quality	Air quality depends on distributed sources and atmospheric processes; effects cross neighborhoods and jurisdictions; maintaining the condition may require coordinated monitoring across sectors and levels.	Source attribution; affected population; atmospheric scale; applicable thresholds; jurisdictional and sectoral responsibilities; monitoring continuity.	A localized indoor or site-specific air problem that can be fully controlled by one operator would not meet the multilevel threshold.
Selected AI configuration	An AI socio-technical configuration may condition access to knowledge, essential services or public decisions while depending on data, models, compute, platforms and multiple institutional regimes.	Vital collective function; propagated effects; non-separable technical layers and institutional levels; intersecting data, ownership or regulatory regimes; single-actor insufficiency; verifiable thresholds or triggers; monitoring and responsibility architecture.	Strategic importance, market dominance or technological sophistication alone are insufficient; absent satisfaction of all five criteria, the configuration remains outside the framework.

A. Aquifer: from asset boundaries to hydrological interdependence

Aquifers make visible why MC cannot be reduced to the legal status of a single asset. Land parcels, wells and productive facilities may belong to different owners; water services and environmental controls may be public; hydrological processes nevertheless follow recharge and flow patterns that cut across all of those titles. The relevant object is the continuity of the aquifer condition within its functional perimeter. A geographically bounded aquifer can therefore be multilevel when hydrological, temporal and jurisdictional levels, together with ownership regimes, cannot be separated without losing sight of how the condition actually works.

B. Air quality: shared condition without a single resource owner

Metropolitan air quality is a different kind of test because there is no discrete resource that must first be allocated among users. Breathable air is produced—or degraded—through the interaction of multiple sources and atmospheric processes. The relevant condition is therefore air quality itself, maintained over time, rather than ownership of “air” as an object. Thresholds, longitudinal monitoring and coordinated responsibility may have to operate across sectors and levels. A contained occupational exposure that one operator can fully control, by contrast, may call for stringent regulation without meeting the MC threshold.

C. Artificial intelligence as a boundary case

Artificial intelligence is intentionally used here as a difficult boundary case, because it is particularly easy to stretch the category too far. An AI model does not qualify simply because it is technologically advanced, widely used, publicly funded or socially beneficial. Qualification becomes plausible only when the relevant object is a broader socio-technical configuration—data, models, compute, platforms, access rules, decision procedures and oversight—that performs a vital collective function and also satisfies the remaining criteria. UNESCO’s Recommendation on the Ethics of Artificial Intelligence is relevant to rights, transparency, responsibility and societal effects, but it does not imply that AI is itself a commons [47].

Consider an AI-supported infrastructure that materially shapes access to essential public services or to a public knowledge environment. Dependence may then extend across private providers, public authorities, data infrastructures and affected communities. The candidate MC condition would not be ownership of the model as such, but reliable and contestable access to the decision or knowledge function that the wider configuration makes possible. A commercial recommendation system or an internal productivity tool presents a different case: neither becomes MC simply because it is sophisticated or widely used. The five criteria would still have to be demonstrated.

VIII. DISCUSSION

A. Theoretical contribution

The theoretical contribution is clearest at the level of the object being qualified. MC asks researchers to test an interdependent shared condition rather than begin from the property status of an isolated thing. That relational move is not, by itself, new; commons scholarship and SES research provide substantial antecedents.

Its significance here comes from coupling the unit of analysis with a joint threshold that excludes cases in which only importance, actor plurality, scale or complexity is present. The framework is therefore defined as much by the cases it leaves out as by those it brings in.

Equally important is the relationship between qualification and institutional design. The article does not claim originality for the general idea of diagnosis-before-design [24–26]. It treats the five-criterion threshold as the qualification component of a broader proposal in which qualified conditions already carry governance implications. SES diagnosis, institutional-fit analysis, polycentric governance, multilevel governance and adaptive governance can then be used to investigate and design arrangements suited to the particular condition. In this sense, MC is meant to work alongside those traditions rather than displace them.

The bridge to management follows from the same logic. MC connects organizational action to a shared condition without assuming that firm boundaries disappear or that every externality becomes a collective governance problem. Managerial attention expands only when there is evidence that the five criteria are jointly met. Whether this produces better analysis in strategy, sustainability, innovation, risk or due diligence remains an empirical question rather than something a conceptual paper can settle in advance.

B. Relationship with common good and generativity

Commons and common good are connected here, but they are not collapsed into one another. MC identifies a condition of shared dependence and the governance problem that follows from it. The common-good perspective concerns the direction and quality of collective value and therefore belongs to the broader orientation of governance, not to the five-criterion threshold as a sixth test. Mazzucato's work is useful in this respect because it emphasizes goal shaping and collaborative capacity [32]. In related work, Casale and co-authors have developed a systemic 5.0 perspective and the idea of generative capacity to connect socio-technical transformation with human-centricity, sustainability, governance quality and long-term value direction [44,45]. The later Industry 6.0 contribution extends this concern to the reflexive governance of advanced industrial ecosystems, including technological autonomy, traceability and common-good orientation [46]. These references help situate the managerial and normative implications; they do not replace the five-criterion MC framework derived from the published working paper [1].

Keeping these tasks separate avoids two opposite mistakes. A condition does not become MC merely because it serves a desirable social purpose. At the same time, successful coordination does not make governance normatively neutral: a well-coordinated multilevel system can still concentrate benefits, shift costs elsewhere or erode future options. Qualification and evaluation of the direction of outcomes are therefore distinct questions, but they remain closely connected.

C. Limitations

Several limitations should be stated plainly. The framework is conceptual and has not yet been validated through comparative empirical research; the applications test its intended discriminatory logic but do not establish predictive validity. The review is purposive rather than systematic, so the originality claim is necessarily limited to the literatures examined. "Vital function" is also context dependent and may be contested in practice. Finally, the fifth criterion needs further operational development so that the structural need for thresholds, monitoring and coordinated responsibility can be demonstrated without making an already formalized governance regime a prerequisite for qualification.

Boundary selection creates a further difficulty. Identifying the relevant scales, levels and intersecting regimes is partly an empirical problem and partly an institutional one. Responsibility is also intentionally left under-specified at this stage. The article does not attempt to turn a conceptual framework into a universal liability model: legal responsibility, ethical responsibility and managerial accountability operate according to different rules and would need to be analyzed separately before any attempt at integration.

D. Research agenda

Empirical work should begin by translating the five criteria into observable indicators, evidentiary standards and decision rules. Comparative case studies could then test inter-rater reliability—whether independent researchers applying the same protocol reach similar qualification decisions—and discriminant validity against SES diagnostic approaches, multilevel governance of the commons and neighboring constructs. A second line of inquiry should examine institutional fit after qualification, asking which combinations of polycentric, multilevel, adaptive and network governance are better able to preserve different MC conditions under varying distributions of knowledge, power and uncertainty.

A parallel research stream concerns organizations. Future studies could examine how firms recognize their dependence on and contribution to MC conditions, whether qualification changes strategic or risk decisions, and which governance mechanisms reduce responsibility gaps across supply chains and ecosystems. Socio-technical cases deserve particular attention, especially AI and data infrastructures, where ownership, operational control, public relevance and epistemic dependence are distributed differently from ecological systems. Legal research, in turn, should test how doctrines of property, public interest, environmental protection,

due diligence and administrative cooperation might translate MC qualification without producing an indeterminate new legal category.

IX. CONCLUSION

The governance challenge addressed by Multilevel Commons is not that every important resource should now be called a commons. It is that some conditions on which collective life depends are produced and transformed through interdependencies that cannot be contained by a single property title, organization, jurisdiction or technical discipline. Commons scholarship, SES research, diagnostic approaches and work on polycentric and multilevel governance already explain much of this complexity. Against that background, the present article has concentrated on one specific question within the broader MC proposal: when does an interdependent shared condition meet a joint threshold of vital function, propagated effects, non-separable scales, structural insufficiency of a single actor or regime, and dependence on thresholds, monitoring and shared responsibilities? Answering that question clarifies the qualification function of MC, but it does not exhaust its institutional or governance implications.

The originality claim should be read at the same level of specificity. Relational commons, multilevel analysis, multidimensional linkages, diagnostic reasoning, diagnosis-before-design and earlier uses of “multi-level commons” all have substantial antecedents. What was not identified in the comparator literatures reviewed here is a functionally equivalent formulation that brings these five criteria together for the same qualification purpose. For management, this provides a disciplined way to ask when organizational action should be analyzed as part of a condition whose continuity depends on multiple actors, scales, levels and intersecting regimes. For governance research, it creates a bridge to SES diagnosis, institutional fit, polycentricity and multilevel architectures without turning any of those approaches into a definition of the common. The analytical sharpening introduced here therefore leaves the broader trajectory of the working paper intact: public knowledge, coordinated and differentiated responsibility, stable civic participation, monitoring and revision remain central to translating qualification into durable governance [1].

Whether MC proves useful will ultimately depend on empirical work. The criteria need to be operationalized, applied by different researchers, distinguished convincingly from neighboring constructs and related to governance outcomes without allowing responsibility to disappear into complexity. The framework is therefore best treated as a testable and revisable conceptual proposal, not as a completed theory.

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