

Adaptive Global Governance: A Framework for Measuring Institutional Adaptiveness in the Post-Pact Era

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ABSTRACT

The adoption of the Pact for the Future at the September 2024 Summit of the Future has produced a major multilateral governance reform mandate, encompassing twenty actions on Security Council reform, General Assembly revitalisation, international financial architecture redesign, and strengthened cooperation with emerging technologies. Yet the Pact's adoption also exposes a structural tension that conventional reform debates struggle to address: the gap between the complexity, velocity and interdependence of contemporary global challenges and the rigidity of institutional architectures designed for earlier historical conditions. This article, the foundational theory contribution to the Adaptive Global Governance (AGG) research programme, argues that governance adaptiveness constitutes a distinct analytical construct that existing scholarship on representation, effectiveness and resilience does not adequately capture. Synthesising complex adaptive systems theory, adaptive governance scholarship from socio-ecological systems research, regime complexity literature and networked multilateralism, the article develops a four-capacity conceptual architecture — anticipatory, responsive, inclusive and learning — that together constitute the adaptive capacity of a governance system. It then introduces the Governance Adaptiveness Index (GAI), a provisional composite measurement architecture that operationalises these capacities through indicator selection, normalisation, scoring, weighting and aggregation rules made transparent for subsequent validation. The article illustrates the framework's potential diagnostic utility by mapping the Multilateralism Index 2024 onto the four capacities, revealing a distinctive pattern in which state participation has remained robust while performance has declined across every domain and inclusivity has broadly improved. The article outlines a multi-phase validation pathway, addresses conceptual, methodological and political-economy limitations, and identifies normative trade-offs between adaptiveness and accountability. The article does not claim that the GAI has been empirically validated; it presents a conceptual and provisional methodological foundation for the AGG programme's subsequent calibration, case-study and policy phases.

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ADAPTIVE GLOBAL GOVERNANCE PROGRAMME

Foundational Theory Paper I

Adaptive Global Governance:

A Framework for Measuring Institutional Adaptiveness

in the Post-Pact Era

Global Perspectives on Politics and Diplomacy

Adaptive Global Governance Research Programme

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Abstract

The adoption of the Pact for the Future at the September 2024 Summit of the Future has produced a major multilateral governance reform mandate, encompassing twenty actions on Security Council reform, General Assembly revitalisation, international financial architecture redesign, and strengthened cooperation with emerging technologies. Yet the Pact's adoption also exposes a structural tension that conventional reform debates struggle to address: the gap between the complexity, velocity and interdependence of contemporary global challenges and the rigidity of institutional architectures designed for earlier historical conditions. This article, the foundational theory contribution to the Adaptive Global Governance (AGG) research programme, argues that governance adaptiveness constitutes a distinct analytical construct that existing scholarship on representation, effectiveness and resilience does not adequately capture. Synthesising complex adaptive systems theory, adaptive governance scholarship from socio-ecological systems research, regime complexity literature and networked multilateralism, the article develops a four-capacity conceptual architecture — anticipatory, responsive, inclusive and learning — that together constitute the adaptive capacity of a governance system. It then introduces the Governance Adaptiveness Index (GAI), a provisional composite measurement architecture that operationalises these capacities through indicator selection, normalisation, scoring, weighting and aggregation rules made transparent for subsequent validation. The article illustrates the framework's potential diagnostic utility by mapping the Multilateralism Index 2024 onto the four capacities, revealing a distinctive pattern in which state participation has remained robust while performance has declined across every domain and inclusivity has broadly improved. The article outlines a multi-phase validation pathway, addresses conceptual, methodological and political-economy limitations, and identifies normative trade-offs between adaptiveness and accountability. The article does not claim that the GAI has been empirically validated; it presents a conceptual and provisional methodological foundation for the AGG programme's subsequent calibration, case-study and policy phases.

Keywords: adaptive governance; global governance; Pact for the Future; complex adaptive systems; Governance Adaptiveness Index; multilateralism; institutional learning; composite indicators

1. Introduction

On 22 September 2024, the United Nations General Assembly adopted the Pact for the Future, a 56-page outcome document that its proponents described as the most wide-ranging international agreement in many years.[1][2] The Pact's five chapters address sustainable development, international peace and security, science and technology, youth and future generations, and, in its final and most ambitious chapter, the transformation of global governance. Chapter V encompasses twenty distinct actions, numbered 38 through 57, that collectively commit the international community to reforming the Security Council, revitalising the General Assembly, strengthening the Economic and Social Council, redesigning the international financial architecture, enhancing the peacebuilding architecture, and deepening cooperation with regional organisations.[3][4] The breadth of this reform agenda is unusually wide-ranging in the post-Cold War era, and its adoption by all 193 Member States represents a genuine political achievement.[2][24]

Yet the Pact's adoption, for all its symbolic significance, also laid bare the central paradox of contemporary global governance. The institutions tasked with managing the most complex and interconnected challenges in human history are themselves among the most rigid and resistant to change. The Security Council, the preeminent body for international peace and security, retains the same membership structure established in 1945, with five permanent members holding veto power that has been exercised with increasing frequency in recent years to block action on conflicts from Syria to Ukraine to Gaza.[5] The international financial architecture, centred on the Bretton Woods institutions created at the end of the Second World War, has been the subject of reform demands for decades, yet its governance structures remain heavily weighted toward the countries that established them.[6][7] The General Assembly, while universal in membership, has seen its authority and relevance erode as decision-making has migrated to smaller, more exclusive forums such as the G20 and the G7.[4] The fundamental problem is not merely that specific institutions require reform; it is that the entire architecture of global governance was designed for a world of relatively autonomous nation-states dealing with relatively contained, sector-specific problems, and is now being asked to manage a cascade of interconnected, transboundary and rapidly evolving challenges, from climate change and pandemic disease to artificial intelligence and cyber conflict.[8][31]

1.1 The Empirical Problem

The empirical problem this article addresses can be stated plainly. Global governance institutions are operating under conditions of accelerating complexity, deepening interdependence, cascading crises, systemic risk, rapid technological transformation, climate disruption, geopolitical fragmentation, and institutional inertia. These conditions are not discrete pressures that can be addressed sequentially; they interact nonlinearly, producing effects that exceed the sum of their parts.[8][22] The Multilateralism Index 2024, published in October 2024 by the International Peace Institute and the Institute for Economics and Peace, provides the most rigorous available quantitative picture of the resulting strain.[16] Tracking changes in international cooperation across five governance domains between 2013 and 2023, the Index finds that participation in the multilateral system has remained robust — 73 percent of indicators improved over the decade — while performance has declined across every domain, with 55 percent of performance indicators deteriorating.[16][17] Inclusivity, by contrast, improved in 90 percent of measured indicators.[16] The system shows robust participation alongside declining performance, a pattern that demands analytical attention.

1.2 The Theoretical Problem

Existing global governance debates concentrate, with good reason, on questions of representation, legitimacy, institutional effectiveness, power distribution, and reform design.[4][6][23] These debates have produced indispensable insights, but they share a common analytical horizon: they evaluate institutions largely against the challenges they were designed to address, rather than against the velocity and complexity of the challenges they now face. The article argues that an additional analytical problem requires sustained attention: governance adaptiveness, understood as the continuing capacity of institutions to detect, interpret, respond to, and learn from changing conditions. Adaptiveness is not reducible to effectiveness (an outcome), to resilience (persistence under shock), or to representation (who participates). It is a distinct system-level property that concerns whether governance architectures can keep pace with the environments they govern. [8][11][33]

1.3 The Research Gap

There is substantial literature on governance effectiveness, resilience, institutional reform, multilateralism, regime complexity, and representation.[11][22][23][36][37] There is also a mature body of work on adaptive governance in socio-ecological systems.[11][32][33][34][35] What remains comparatively underdeveloped is the systematic conceptualisation and measurement of the continuing adaptive capacity of global governance systems as such. Existing scholarship has produced important conceptual resources — Biermann and colleagues on fragmentation, Alter and Meunier on regime complexity, Folke and colleagues on socio-ecological adaptive governance, Hale, Held and Young on gridlock. To the authors' knowledge, however, existing scholarship has not yet produced a widely established framework that systematically theorises and operationalises governance adaptiveness as a measurable property of multilateral institutions across multiple governance domains.[8][11][22][36][37] The article addresses this gap directly. This claim is advanced with appropriate caution: a systematic literature review across multiple databases would be required to establish the negative with greater confidence, and such a review is itself planned within the AGG programme's subsequent phases.

1.4 Research Questions

The article is organised around three research questions. First, what does it mean for a global governance system to be adaptive? Second, how can governance adaptiveness be distinguished from adjacent concepts such as effectiveness, resilience and representation? Third, how might governance adaptiveness be operationalised through a transparent composite measurement framework? These questions are interrelated: the first is conceptual, the second is taxonomic, and the third is methodological. Together they define the scope of the AGG research programme's foundational phase.

1.5 Contributions

The article claims four contributions. The conceptual contribution introduces governance adaptiveness as a distinct analytical construct, distinguished from effectiveness, resilience, representation, reform and adaptive management. The theoretical contribution integrates complex adaptive systems theory, adaptive governance scholarship, regime complexity literature and networked multilateralism into a unified framework that specifies the four capacities through which governance systems adapt. The methodological contribution develops the provisional architecture of the Governance Adaptiveness Index, including indicator selection principles, a scoring rubric, weighting and aggregation rules, and a validation strategy. The research-programme contribution establishes the conceptual foundation for subsequent validation, case-study and policy phases that together constitute a cumulative research initiative on adaptive global governance.

1.6 Roadmap

The article proceeds in sixteen sections. Section 2 develops the governance adaptation imperative, identifying seven structural drivers of adaptation pressure. Section 3 introduces the concept of the adaptive deficit and distinguishes it from adjacent deficits. Section 4 builds the theoretical foundations, engaging systematically with complex adaptive systems, adaptive governance, global governance theory, polycentric and network governance, and institutional learning. Section 5 distinguishes governance adaptiveness from six adjacent concepts. Section 6 develops the four-capacity ARIL framework. Section 7 presents the methodological architecture of the GAI. Section 8 addresses reliability, validity and robustness. Section 9 maps the Multilateralism Index 2024 onto the framework. Section 10 analyses the political economy of governance adaptation. Section 11 identifies failure modes. Section 12 examines normative trade-offs between adaptiveness, legitimacy and accountability. Section 13 addresses counterarguments and limitations. Section 14 develops policy implications. Section 15 expands the AGG research programme architecture. Section 16 concludes.

2. The Governance Adaptation Imperative

The contemporary critique of global governance has two strands. The first, more familiar strand focuses on representation: who sits at the table, who has veto power, and whether the governance architecture reflects the distribution of economic and political power in the twenty-first century. This is the critique that animates Security Council reform, IMF quota adjustments, and demands for greater Global South voice in multilateral institutions.[4][6] The second, less explored but equally important, strand focuses on adaptiveness: whether the institutional architecture is capable of responding to challenges that are qualitatively different from those for which it was designed. This strand asks not only whether the Security Council should have more members, but whether a body designed for state-on-state territorial conflict is the right instrument for addressing climate-induced displacement, transnational terrorism, or AI-enabled cyber warfare. It asks not only whether the IMF should lend more to developing countries, but whether a lending institution designed for balance-of-payments crises is equipped to manage the systemic risks posed by digital currencies, sovereign debt distress, and the collapse of development finance.[7][8]

2.1 Seven Structural Drivers of Adaptation Pressure

Beyond the familiar critique of institutional rigidity, this section identifies seven structural drivers that have made adaptation a central governance problem. These drivers are analytically separable but empirically interlocking, and together they explain why traditional institutional reform alone may be insufficient to close the gap between challenges and capacities.

First, velocity. The speed at which risks and opportunities emerge has accelerated markedly. Climate tipping points once projected for the late century now appear possible within decades; pandemic disease moves at the speed of global aviation; AI capability advances render regulatory frameworks obsolete within single product cycles.[8][15] Institutional decision-making cycles calibrated to diplomatic time horizons of months or years are structurally mismatched with problems that unfold in days or weeks.

Second, interdependence. Decisions and shocks in one system propagate rapidly through others. The 2008 financial crisis, the COVID-19 pandemic, and the 2022 invasion of Ukraine each demonstrated that energy, food, health, financial and security systems are tightly coupled in ways that exceed the analytic and operational boundaries of any single multilateral institution.[8][22] Governance architectures organised by sector struggle to manage cross-system cascades.

Third, nonlinearity. Incremental changes in underlying conditions can produce disproportionate consequences once thresholds are crossed. Climate science documents tipping elements whose behaviour cannot be inferred from linear trends; financial systems exhibit leverage effects that turn local shocks into systemic crises; social

systems undergo rapid opinion shifts whose timing is difficult to anticipate.[8][31] Governance systems designed for linear extrapolation are particularly ill-suited to nonlinear dynamics.

Fourth, cascading risk. Contemporary crises move across institutional and sectoral boundaries in ways that defeat sector-specific mandates. A localized conflict displaces populations, disrupts food supply chains, accelerates disease transmission, and stresses humanitarian financing simultaneously.[16] The multilateral system's organisation into discrete functional domains — peace and security, humanitarian affairs, health, development, climate — was designed for a world in which problems could be compartmentalised. That assumption no longer holds.

Fifth, deep uncertainty. Many contemporary challenges confront institutions with situations in which neither probabilities nor consequences can be reliably estimated. The trajectory of artificial general intelligence, the stability of climate tipping elements, and the geopolitical consequences of demographic transition all exhibit what decision theorists term deep uncertainty or radical uncertainty.[8][30] Conventional risk management, which assumes knowable probability distributions, is poorly suited to such domains.

Sixth, institutional path dependence. Historical institutional arrangements constrain contemporary responses through embedded organisational cultures, sunk costs in specialised expertise, legal commitments to constituent bodies, and the political investments of powerful incumbents.[22][38] The Security Council's composition, the Bretton Woods institutions' voting weights, and the structure of UN specialised agencies all reflect compromises struck in 1945 and adjusted only incrementally since. Path dependence makes rapid architectural change difficult even when the need for it is widely recognised.

Seventh, temporal mismatch. The speed of global change has diverged sharply from the speed of institutional decision-making. Climate negotiations have proceeded in five-year cycles while atmospheric concentrations of greenhouse gases accumulate continuously; Security Council reform has been debated for three decades while the Council's capacity to act on contemporary conflict has visibly eroded; AI governance frameworks are being negotiated while the underlying technology undergoes generational change every few months.[16][15] This temporal mismatch is not incidental; it is structural, and it is widening.

2.2 Why Traditional Reform Alone Is Insufficient

These seven drivers together explain why traditional institutional reform, understood as the adjustment of formal structures, mandates and memberships, may be necessary but is unlikely to be sufficient. Reform can alter who decides and through what procedures; it cannot, by itself, transform how institutions process information, anticipate emerging risks, integrate diverse knowledge, or learn from experience. A Security Council expanded to twenty-five members would still confront the same velocity, interdependence and cascading-risk challenges that the current fifteen-member Council faces. An IMF with rebalanced quotas would still confront the same nonlinearity and deep uncertainty in global financial systems. Reform without adaptiveness produces institutions that are more representative but not necessarily more capable of meeting contemporary challenges. This is the analytical insight that motivates the framework developed in subsequent sections.

3. The Adaptive Deficit in Global Governance

The framework introduced in this article centres on the concept of the adaptive deficit, defined as the condition that arises when the capacity of a governance system to detect, interpret, respond to, and learn from changing conditions is insufficient relative to the complexity, velocity and uncertainty of the environment in which it operates. An adaptive deficit is not a deficit of resources, of representation, or of legitimacy, although

it may coexist with each of these. It is specifically a deficit of the continuing institutional capacities through which governance systems keep pace with the problems they are mandated to address.

The adaptive deficit is analytically distinct from five other deficits commonly identified in the global governance literature. Representation deficits concern who is present at the decision-making table and whether the composition of decision-making bodies reflects the distribution of population, power and interest in the international system. Legitimacy deficits concern the perceived rightfulness of institutional authority, whether affected publics regard decisions as binding and proper. Effectiveness deficits concern whether institutions achieve their stated objectives. Resource deficits concern whether institutions possess the financial, human and technical means to act. Implementation deficits concern whether formal decisions translate into operational outcomes on the ground. Each of these deficits is important, and each has generated substantial scholarship.[4][6][22][23][39]

The adaptive deficit is different in kind. It concerns not what an institution has, decides or achieves at a given moment, but whether it can sustain and reconfigure its capacities over time as conditions change. Crucially, the adaptive deficit can coexist with strength on each of the other dimensions. An institution may be representative in composition but slow in its decision-making, as the General Assembly often is on questions of peace and security. An institution may be effective in stable conditions but maladaptive under rapid change, as the World Health Organization's emergency framework appeared to be during the early phase of the COVID-19 pandemic. An institution may be inclusive in its consultation practices but incapable of coordinated action with sister bodies. An institution may be well-resourced but unable to learn, as large bureaucracies sometimes demonstrate when evaluation functions exist but fail to inform subsequent decisions.[8][38][46]

3.1 The Diagnostic Significance of the Adaptive Deficit

The diagnostic significance of the adaptive deficit is that it directs attention to a class of institutional failures that other deficit concepts do not capture. When a multilateral body fails to anticipate a crisis, fails to mobilise a timely response, fails to incorporate available knowledge, or fails to integrate the lessons of past failure into future practice, the resulting disappointment is often attributed to political disagreement or to a lack of resources. Such explanations are sometimes correct. But they may also obscure a more fundamental diagnosis: the institution lacks the adaptive capacities that would have enabled it to act differently even with identical political constraints and resources. Naming this deficit as adaptive rather than representational or material opens analytical space for interventions that build anticipation, responsiveness, inclusion and learning as distinct institutional capacities, rather than treating them as byproducts of reform, finance or representation.

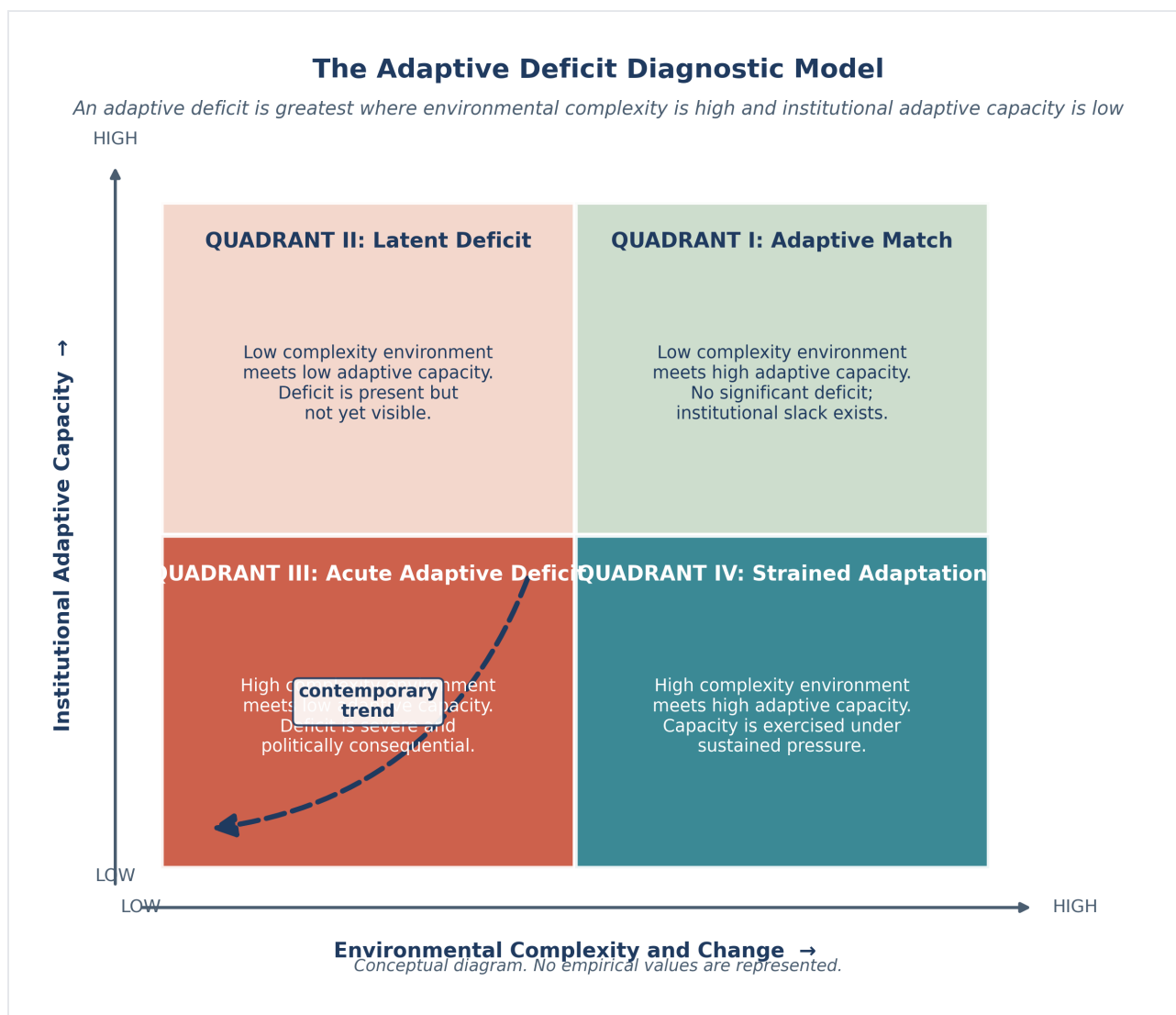


Figure 1. The Adaptive Deficit Diagnostic Model

Conceptual diagram. No empirical values are represented. An adaptive deficit is greatest where environmental complexity is high and institutional adaptive capacity is low.

Figure 1 illustrates the diagnostic model schematically. The horizontal axis represents environmental complexity and change, ranging from low to high. The vertical axis represents institutional adaptive capacity, also ranging from low to high. The model identifies four ideal-typical positions. In the lower-right quadrant, where complexity is high and adaptive capacity is low, the adaptive deficit is acute and politically consequential. In the upper-left quadrant, where complexity is low and capacity is high, no significant deficit exists and institutional slack is available. The two off-diagonal quadrants represent intermediate conditions. The dashed arrow indicates the contemporary trajectory of much of the multilateral system: from conditions of relatively low complexity and high capacity in the post-Cold War period toward conditions of high complexity and stagnant or declining capacity today. This trajectory is the central empirical concern of the AGG research programme.

4. Theoretical Foundations

The framework developed in this article draws on five bodies of scholarship: complex adaptive systems theory, adaptive governance scholarship from socio-ecological systems research, global governance theory and

institutional complexity, polycentric and network governance, and institutional learning. Each body of work contributes distinct conceptual resources; together they provide the theoretical foundation for operationalising governance adaptiveness. The section engages with each in turn, identifying what transfers to global governance and what does not.

4.1 Complex Adaptive Systems Theory

The application of complex adaptive systems (CAS) theory to governance represents one of the most significant intellectual developments in the social sciences of the past three decades.[28][29][30] A complex adaptive system is defined by several core properties. It is composed of diverse, interconnected agents whose interactions produce emergent, system-level behaviours that cannot be predicted from the properties of individual agents alone.[28] It operates far from equilibrium, meaning that small perturbations can produce disproportionately large effects through nonlinear feedback. It is path-dependent, meaning that historical choices constrain future options.[31] It co-evolves with its environment, meaning that changes in the system and its context are mutually constitutive. And it exhibits self-organisation, in which order arises from local interactions rather than central direction.[29][30]

These properties describe the international system with considerable precision. The global economy, the climate system, the digital ecosystem, and the web of international institutions that govern them are all complex adaptive systems characterised by emergence, nonlinearity, path dependence and co-evolution. The implications for governance are profound. If the systems being governed are complex and adaptive, then governance systems must themselves be complex and adaptive. A rigid, hierarchical, rule-bound governance system cannot effectively manage a complex, adaptive, rapidly changing problem domain.[8][9] Jervis's classic work on system effects in international politics established that the indirect, delayed and interactive consequences of actions in complex systems routinely defeat linear policy designs.[31] Axelrod and Cohen's framework for harnessing complexity translated these insights into organisational design principles based on variation, interaction and selection.[30] These resources inform the framework's treatment of governance adaptiveness as an emergent system property rather than a property of any single institution.

4.2 Adaptive Governance Scholarship

The concept of adaptive governance emerged in the early 2000s from the intersection of resilience theory, complexity science, and the study of socio-ecological systems. The landmark 2003 Science paper by Dietz, Ostrom and Stern formally introduced adaptive governance as the framework for managing common-pool resources under uncertainty, arguing that effective environmental governance requires institutions capable of learning, experimenting and reconfiguring themselves in response to environmental variability and surprise.[32] Scholars including Folke, Hahn, Olsson and Norberg demonstrated that the governance of ecosystems, fisheries and water resources required institutions that could sense environmental change, experiment with responses, learn from successes and failures, and adapt their structures and processes accordingly.[11] This body of work produced several influential frameworks, including the adaptive governance cycle and the concept of panarchy developed by Gunderson and Holling, which describes how adaptive cycles at different scales interact.[10]

Chaffin, Gosnell and Cosens's 2014 synthesis of the first decade of adaptive governance scholarship codified the key attributes of adaptive governance institutions: polycentricity, learning, flexibility, collaboration and the capacity to navigate uncertainty.[33] Folke's 2006 synthesis traced the resilience perspective from ecology to social-ecological systems analysis, providing the conceptual vocabulary for understanding how systems absorb disturbance while retaining function.[35] Olsson, Folke and Berkes demonstrated empirically how self-organisation, learning networks and bridging organisations generate adaptive capacity in socio-ecological

systems.[34] These works collectively supply the conceptual core of the AGG framework's four adaptive capacities.

The translation of these insights from ecological to global governance is neither straightforward nor uncontested. Ecological governance systems typically operate at scales where the number of relevant actors is manageable, where feedback loops between action and consequence are relatively short, and where the system being governed has identifiable boundaries. Global governance, by contrast, operates at the largest possible scale, involves hundreds of sovereign states and thousands of non-state actors, and addresses challenges, from climate change to financial stability, where feedback loops are long, causation is distributed and system boundaries are contested.[8][12] Nevertheless, the core insight of adaptive governance — that institutional effectiveness depends on the capacity to sense, respond, include and learn — is directly transferable. The challenge is one of operationalisation, which the GAI is designed to address.

4.3 Global Governance Theory and Institutional Complexity

A third theoretical strand engages scholarship on the architecture and fragmentation of global governance. Biermann, Pattberg, van Asselt and Zelli's 2009 framework for analysing the fragmentation of global governance architectures introduced the distinction between synergistic, cooperative and conflictive fragmentation, providing analytical tools for assessing how the density and diversity of international institutions affects collective outcomes.[36] Alter and Meunier's agenda-setting essay on regime complexity identified the cross-institutional strategies — forum-shopping, strategic inconsistency, regime-shifting — through which states and non-state actors navigate overlapping institutional mandates.[37] Hale, Held and Young's analysis of global gridlock identified the structural mechanisms — growing multipolarity, harder problems, institutional inertia, fragmentation — through which the postwar institutional architecture has produced rising cooperation failures.[22] Barnett and Finnemore's constructivist account of international organisations as bureaucratic actors with their own pathologies complements these structural analyses by showing how internal organisational cultures produce maladaptive behaviour even in the absence of external political constraint.[38]

For the AGG framework, this scholarship matters in three respects. First, it establishes that the multilateral system is not a single coherent architecture but a fragmented complex of overlapping institutions whose interactions can be synergistic, cooperative or conflictive. Adaptiveness at the system level therefore depends not only on the capacities of individual institutions but on the quality of coordination among them. Second, it shows that regime complexity creates strategic opportunities and constraints that themselves shape adaptive behaviour. Third, it confirms that institutional inertia and bureaucratic pathologies are not incidental features of international organisations but structural properties that adaptive governance frameworks must explicitly address.

4.4 Polycentric and Network Governance

A fourth theoretical strand comes from scholarship on polycentric and network governance. Elinor Ostrom's late work extended polycentricity — the coexistence of multiple, overlapping decision-making centres at different scales — to global-scale collective action problems, arguing that polycentric systems can cope with collective action and global environmental change more effectively than monocentric systems because they enable experimentation, learning across units, and redundancy.[44] Sørensen and Torfing's collection on democratic network governance developed the concept of metagovernance, the indirect steering of networked governance processes through framing and facilitation rather than command.[45]

Polycentric and networked structures may facilitate adaptation in several ways: they enable parallel experimentation, they distribute intelligence across multiple nodes, they reduce single points of failure, and

they can incorporate diverse forms of knowledge.[44][45] But polycentricity is not a panacea. Distributed governance can produce coordination failures, fragmentation, accountability gaps, duplication of effort, and the entrenchment of unequal power among network nodes.[36][37] The framework developed here therefore treats polycentricity as a structural condition that creates both opportunities and risks for adaptiveness, rather than as an unambiguous good. Coordination capacity — the ability to align action across distributed nodes without imposing hierarchical command — emerges as a critical sub-capacity within the responsive dimension of the GAI.

4.5 Institutional Learning

A fifth theoretical strand concerns institutional and organisational learning. Argyris and Schön's foundational theory of organisational learning distinguished single-loop learning, in which organisations detect and correct errors within existing goals and norms, from double-loop learning, in which they re-examine the governing variables themselves.[46] This distinction is critical for governance adaptiveness: an institution that engages in single-loop learning can adjust its procedures but cannot reconsider its objectives; an institution capable of double-loop learning can reconfigure its purposes in response to changing conditions. Peter Haas's work on epistemic communities showed how knowledge-based networks of experts influence international policy coordination, particularly in technically complex domains such as climate, health and environmental protection.[47]

Learning at the institutional level is distinct from learning at the individual or organisational level. Institutional learning requires that lessons identified by individuals and units be encoded in formal procedures, evaluation systems, training curricula and decision rules, so that they persist beyond the tenure of particular personnel. [46] It requires institutional memory, formal feedback mechanisms, structured evaluation and the willingness to update rules in light of evidence. The AGG framework treats learning as one of four core adaptive capacities and develops specific sub-dimensions — evaluation infrastructure, institutional memory, lesson integration, and adaptive reform — through which it can be operationalised and assessed. The framework also recognises that learning is politically difficult: institutions resist learning when learning exposes failure, threatens reputational interests, redistributes power, or challenges established procedures. This political dimension is taken up explicitly in Section 10.

5. Conceptual Distinction: Governance Adaptiveness and Adjacent Concepts

Establishing governance adaptiveness as a distinct analytical construct requires careful differentiation from six adjacent concepts with which it is sometimes conflated. This section distinguishes adaptiveness from effectiveness, resilience, representation and inclusiveness, institutional reform, adaptive management, and polycentric or network governance. The distinctions matter because conceptual slippage risks turning adaptiveness into a synonym for good governance, thereby losing the analytical specificity that justifies a dedicated measurement framework.

5.1 Governance Effectiveness

Governance effectiveness primarily concerns outcomes: the degree to which governance arrangements achieve their stated objectives, deliver intended services, or produce desired conditions in the world.[23][39] Effectiveness is typically assessed at a given point in time and against fixed criteria. Governance adaptiveness, by contrast, concerns the continuing capacity of a governance system to maintain or reconfigure effectiveness under changing conditions. An institution may be effective today but insufficiently adaptive for tomorrow, because the conditions under which its effectiveness was established have changed. Conversely, an institution

may demonstrate adaptive behaviour that does not yet show up in effectiveness metrics because outcomes lag interventions. The two concepts are related but not identical; a complete account of governance performance requires attention to both.

5.2 Resilience

Resilience concerns the capacity of a system to persist, absorb disturbance, recover from shock, and in some formulations transform in response to fundamental change.[10][35] Adaptiveness overlaps with resilience but is not coextensive with it. Resilience is primarily a system-level property concerned with persistence and recovery; adaptiveness focuses specifically on the institutional capacities for anticipation, response, inclusion and learning that enable a governance system to keep pace with its environment. A resilient system may persist without adapting, as a bureaucracy that absorbs shocks without changing its procedures demonstrates. An adaptive system may transform without being conventionally resilient, as an institution that reconfigures itself in anticipation of change demonstrates. The two concepts are complementary; neither subsumes the other.

5.3 Representation and Inclusiveness

Representation concerns who participates in governance and whose interests are recognised in decision-making. Inclusiveness is closely related but emphasizes the breadth and depth of participation. Both are primarily concerned with the composition and procedural dimensions of governance. Adaptiveness, by contrast, concerns how governance systems process changing information and modify behaviour. The two domains are connected: inclusive capacity is one of the four adaptive capacities, because diverse participation expands the information, knowledge and legitimacy available to decision-makers. But inclusiveness does not exhaust adaptiveness. An institution can be highly inclusive in its consultation practices yet slow in its decision-making, poor at anticipating emerging risks, or incapable of learning from its evaluations. Treating adaptiveness as a synonym for inclusiveness would conflate a sub-capacity with the broader construct.

5.4 Institutional Reform

Institutional reform is a process or intervention through which institutions are modified: mandates are adjusted, memberships are expanded, procedures are revised, structures are reorganised. Governance adaptiveness, by contrast, is a continuing institutional capacity that may or may not be enhanced by reform. A system can undergo substantial formal reform without becoming more adaptive, as the history of UN development system reform demonstrates: decades of restructuring have not always translated into improved anticipation, responsiveness or learning. A system can also demonstrate adaptive behaviour without major formal structural reform, as institutions sometimes modify their working methods, consultation practices and feedback loops within existing formal mandates. Reform and adaptiveness are related but distinct; the relationship between them is itself an empirical question that the AGG programme will examine in its case-study phase.

5.5 Adaptive Management

Adaptive management, developed primarily in natural resource management, refers to a structured iterative approach to decision-making in the face of uncertainty, characterised by experimental design, monitoring, and adjustment based on observed outcomes. Adaptive management is a method or approach applied within an institution. Governance adaptiveness, by contrast, is a system-level property that may be supported by adaptive management practices but is not reducible to them. An institution can employ adaptive management techniques in specific programmes while the wider governance system within which it operates remains maladaptive. Conversely, a governance system can exhibit adaptive properties at the system level even where

individual institutions do not formally adopt adaptive management as a methodology. The distinction matters because it locates adaptiveness at the level of governance systems rather than at the level of management practice.

5.6 Polycentric and Network Governance

Polycentric and network governance refer to structural arrangements in which multiple, overlapping decision-making centres operate at different scales, often linked through horizontal rather than hierarchical relationships.[44][45] Such structures may facilitate adaptation by enabling parallel experimentation, distributed intelligence and learning across units. But polycentric structures do not automatically produce adaptive outcomes. Coordination failure, accountability gaps, duplication and the entrenchment of unequal power can produce maladaptive results within formally polycentric arrangements.[36][37] Adaptiveness is therefore a property that emerges from the interaction of structural arrangements and the capacities of the actors operating within them; it cannot be inferred from structure alone. The GAI treats polycentricity as a structural condition that creates opportunities for adaptive behaviour, while coordination capacity remains a critical determinant of whether those opportunities are realised. Figure 2 synthesises the conceptual architecture developed across Sections 2 through 5, presenting the full chain of reasoning from the global challenges that generate adaptation pressure, through the governance adaptation imperative, to governance adaptiveness as a distinct construct, the four adaptive capacities, the GAI as the measurement architecture, and the multi-level analytical structure through which the framework is applied.

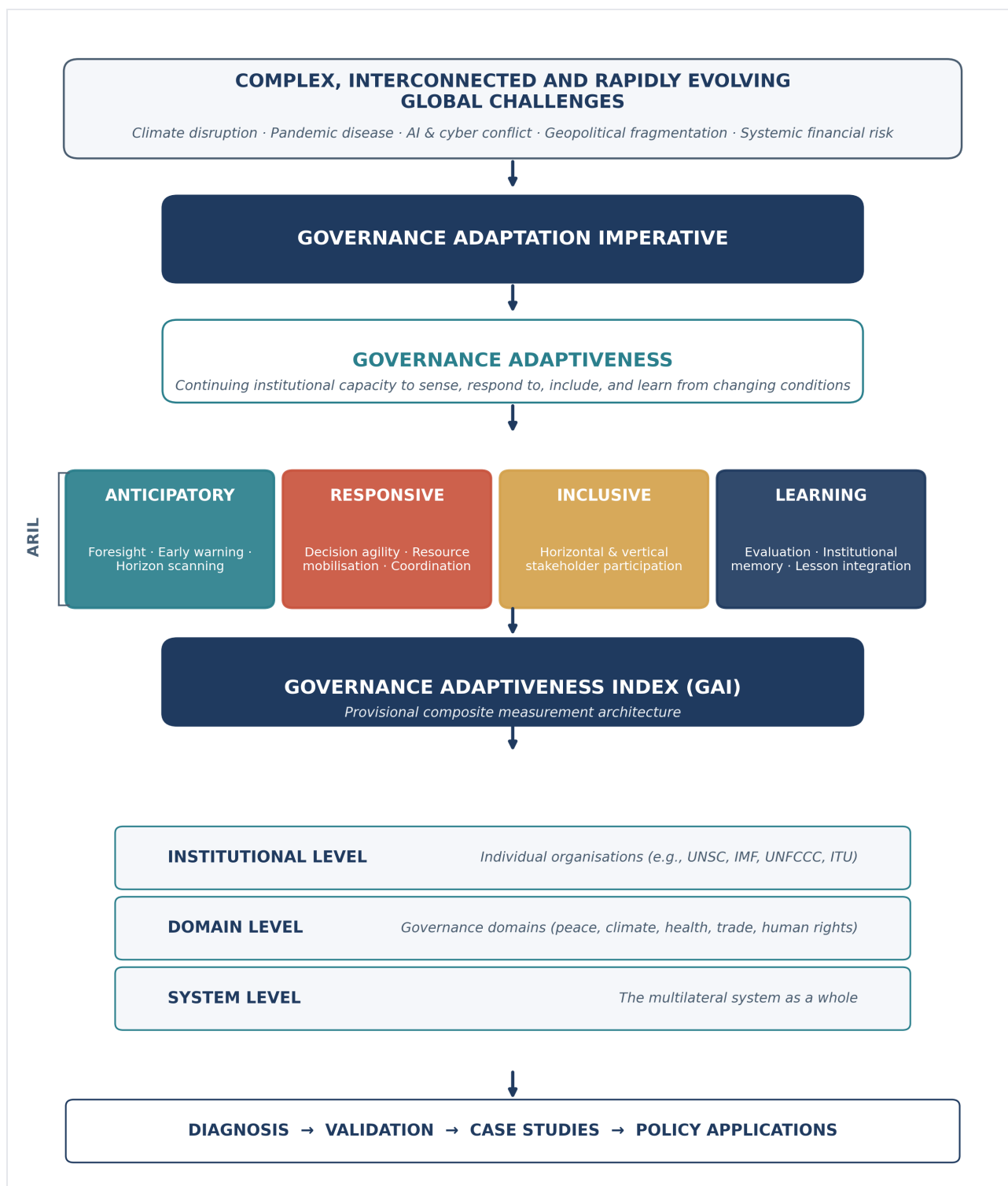


Figure 2. The Adaptive Global Governance Framework

Conceptual architecture linking global challenges, the governance adaptation imperative, governance adaptiveness, the four adaptive capacities (ARIL), the Governance Adaptiveness Index, and the multi-level architecture of analysis.

6. The Four Adaptive Capacities: The ARIL Framework

Drawing on the theoretical foundations outlined in Section 4, the AGG framework identifies four adaptive capacities that together constitute governance adaptiveness: anticipatory, responsive, inclusive and learning.

These capacities correspond to the core functions that any adaptive governance system must perform: it must perceive its environment, act on what it perceives, incorporate diverse perspectives and knowledge sources, and update its internal models based on experience.[11][32][33] The framework refers to these capacities collectively through the acronym ARIL, used sparingly to avoid redundancy in the manuscript.

6.1 Anticipatory Capacity

Anticipatory capacity refers to a governance system's ability to identify emerging risks and opportunities before they materialise as full-blown crises, and to integrate this foresight into decision-making. In multilateral institutions, anticipatory capacity encompasses the existence and quality of foresight infrastructure, horizon scanning, early warning systems, strategic intelligence, scenario planning, and structured risk identification. It also includes institutional receptiveness to warning signals: the willingness and ability of decision-making bodies to act on foresight rather than to defer or ignore it. The Pact for the Future's emphasis on building capabilities to anticipate risks, seize opportunities, act early and manage uncertainty is a direct expression of the anticipatory capacity deficit.[3]

Anticipatory capacity is analytically bounded. The generation of foresight, the conduct of horizon scanning and the production of early warning belong to anticipation. The mobilisation of action in response to identified risk belongs primarily to responsive capacity. This boundary matters because institutions can produce foresight without acting on it, a pattern documented across multiple domains from climate science to pandemic preparedness.[8][15] An institution with sophisticated foresight infrastructure but no political capacity to translate warnings into action exhibits anticipation without response, one of the failure modes examined in Section 11.

6.2 Responsive Capacity

Responsive capacity refers to the ability to mobilise resources, make decisions and implement actions in a timely and proportionate manner once a challenge has been identified. In the multilateral context, responsive capacity encompasses decision-making speed, operational flexibility, resource mobilisation, coordination across institutional boundaries, implementation capacity, and proportionality of response. The chronic delays in multilateral responses to crises, from the Rwandan genocide to the COVID-19 pandemic to the humanitarian catastrophes in Sudan and Gaza, are symptoms of responsive capacity deficits.[5][16]

Responsive capacity requires analytical care. Fast responses are not necessarily adaptive if they are poorly informed, disproportionate, or uncoordinated with sister institutions. The framework distinguishes speed from appropriate responsiveness: the capacity to mobilise the right kind of action at the right scale within a relevant timeframe. An institution that responds rapidly but inappropriately may produce outcomes worse than slower but more deliberate action. The GAI's responsive dimension therefore includes proportionality and coordination alongside speed, recognising that rapid ill-considered action is not adaptive.

6.3 Inclusive Capacity

Inclusive capacity refers to the ability to incorporate the perspectives, knowledge and interests of diverse stakeholders into governance processes. The framework distinguishes horizontal inclusion from vertical inclusion. Horizontal inclusion concerns the participation of non-state actors — civil society organisations, the private sector, scientific communities, technical experts and affected populations — in multilateral processes. Vertical inclusion concerns the meaningful participation of developing countries, small states, marginalised groups and historically underrepresented actors in formal decision-making. The Multilateralism Index 2024's inclusivity dimension, which tracks NGO engagement and women's representation across UN bodies, provides a partial empirical measure of this capacity.[16]

Inclusive capacity requires further analytical precision. The framework distinguishes four degrees of inclusion: presence, consultation, influence and meaningful participation. Presence refers to physical or formal attendance at governance processes. Consultation refers to the solicitation of views without commitment to act on them. Influence refers to demonstrable effects of participation on decisions. Meaningful participation refers to involvement sufficient to shape agendas, framing and outcomes. Numerical participation should not be equated with genuine inclusion: an institution can host many observers and consult widely without granting influence or meaningful participation. The GAI's inclusive dimension is therefore designed to capture the depth, not only the breadth, of participation.

6.4 Learning Capacity

Learning capacity refers to the ability to evaluate the outcomes of governance actions, to integrate lessons learned into future decision-making, and to adapt institutional structures and processes based on experience. This capacity is especially difficult to observe and systematically measure in the multilateral system, where institutional learning can be impeded by political pressures, organisational silos, and the absence of systematic evaluation mechanisms.[8][46][47] Learning capacity encompasses evaluation infrastructure, monitoring systems, institutional memory, learning from failure, policy feedback mechanisms, organisational adaptation, and the updating of rules and procedures in light of evidence.

Learning is politically difficult. Institutions may resist learning when learning exposes failure, threatens reputational interests, redistributes power, or challenges established procedures.[38][46] The distinction between single-loop and double-loop learning introduced in Section 4.5 is critical here. Many international institutions engage in single-loop learning — adjusting procedures within existing mandates — but few engage in double-loop learning that re-examines governing variables, objectives and assumptions. The GAI's learning dimension is designed to capture both forms, recognising that double-loop learning is rarer and politically more demanding but often more consequential for long-term adaptiveness.

6.5 The Relationship Among the Four Capacities

The four capacities are not independent columns in a matrix. They are analytically separable, empirically related and potentially interactive. The framework proposes a dynamic adaptive cycle in which anticipation feeds response, response generates experience, experience is processed through evaluation and learning, and learning improves future anticipation. Inclusive capacity is both an independent adaptive capacity and a cross-cutting mechanism through which governance systems gain information, legitimacy, distributed knowledge and feedback at every stage of the cycle. Figure 3 represents this cyclical logic.

The Adaptive Governance Cycle

Inclusion as a cross-cutting capacity feeding anticipation, response, and learning

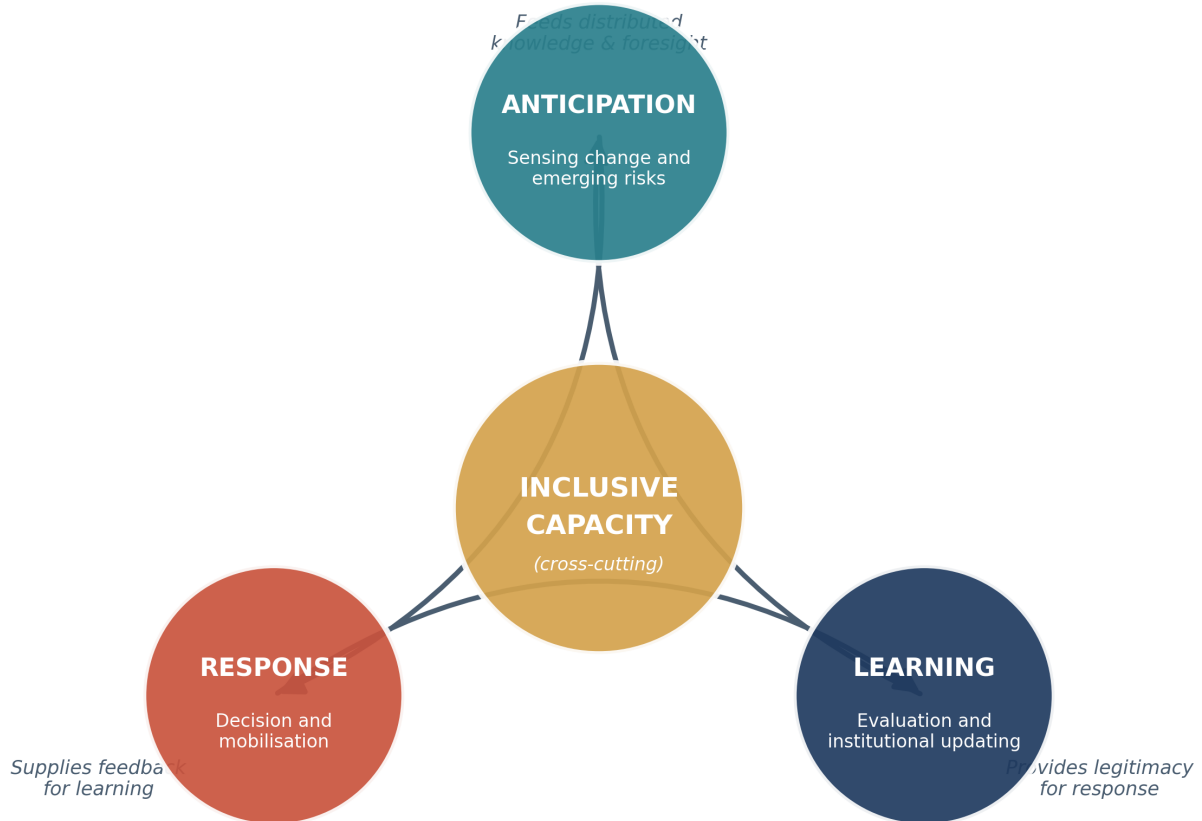


Figure 3. The Adaptive Governance Cycle

Anticipation, response and learning form a cyclical adaptive process. Inclusive capacity operates as a cross-cutting layer that feeds information, knowledge, legitimacy and participation into every stage of the cycle.

The framework treats the four capacities as analytically separable for measurement purposes — each can be assessed independently using distinct indicators — while recognising that they are empirically related and potentially interactive. The framework does not claim causal relationships among the capacities that have not been tested. Whether strong anticipatory capacity produces stronger responsive capacity, for example, or whether inclusive capacity strengthens learning capacity, are empirical questions that the AGG programme's validation and case-study phases are designed to examine. The provisional additive aggregation model presented in Section 7.6 reflects this analytical stance: it treats the capacities as separable components while acknowledging that interactions among them may require non-additive specification in subsequent phases. Table 1 provides a synoptic overview of the conceptual framework, integrating the four capacities with their core definitions, analytical boundaries and illustrative institutional expressions.

Table 1. The Governance Adaptiveness Index: Conceptual Framework

Capacity	Core Definition	Analytical Boundary	Illustrative Institutional Expressions
Anticipatory	The capacity to identify emerging risks and opportunities before they materialise, and to integrate foresight into decision-making.	Generation of foresight belongs to anticipation; mobilisation of action on identified risk belongs to responsive capacity.	Foresight units; horizon-scanning networks; early-warning systems; scenario planning; anticipatory decision protocols.
Responsive	The capacity to mobilise resources, make decisions and implement actions in a timely and proportionate manner once a challenge has been identified.	Speed must be distinguished from appropriate responsiveness; rapid but ill-informed action is not adaptive.	Decision agility; flexible financing; cross-institutional coordination; implementation capacity; proportionality criteria.
Inclusive	The capacity to incorporate the perspectives, knowledge and interests of diverse stakeholders into governance processes, horizontally and vertically.	Numerical participation is distinct from influence or meaningful participation; inclusion is one of four capacities, not the whole of adaptiveness.	Stakeholder engagement mechanisms; Global South voice; expert advisory bodies; civil society consultation; gender and geographic balance.
Learning	The capacity to evaluate the outcomes of governance actions, integrate lessons into future decision-making, and adapt structures and processes based on experience.	Single-loop adjustment is distinct from double-loop re-examination of governing variables; evaluation must inform decision, not only be produced.	Independent evaluation functions; institutional memory; lesson-integration processes; adaptive reform; ex post review of major decisions.

Authors' analysis. The four capacities are analytically separable for measurement purposes but empirically related and potentially interactive. Sub-dimensions and indicators are presented in Table 3.

7. Methodological Architecture of the Governance Adaptiveness Index

The Governance Adaptiveness Index operationalises the four adaptive capacities whose conceptual architecture was presented in Table 1 through a provisional measurement architecture that adheres to established composite-indicator principles.[40][41][42] This section presents the architecture in detail: unit of analysis, construct architecture, indicator selection principles, proposed sub-dimensions, normalisation, scoring, weighting, and aggregation. The architecture is explicitly labelled provisional. The current paper presents conceptualisation and provisional methodology; Phase II of the AGG programme will conduct validation and calibration.

7.1 Unit of Analysis

The GAI is designed to operate at three levels of analysis: the institutional level, the governance-domain level, and the system level. The institutional level measures the adaptiveness of a specific multilateral body, such as the Security Council, the International Monetary Fund, the United Nations Framework Convention on Climate Change or the International Telecommunication Union. The domain level measures adaptiveness within a specific governance domain, aggregating across the institutions active in that domain. The system level measures the overall adaptiveness of the multilateral system as a whole. Figure 4 represents this multi-level architecture schematically, showing how indicators and capacities aggregate upward from the institutional level through the domain level to the system level, and how findings can be disaggregated downward to identify specific institutional or domain-level strengths and weaknesses.

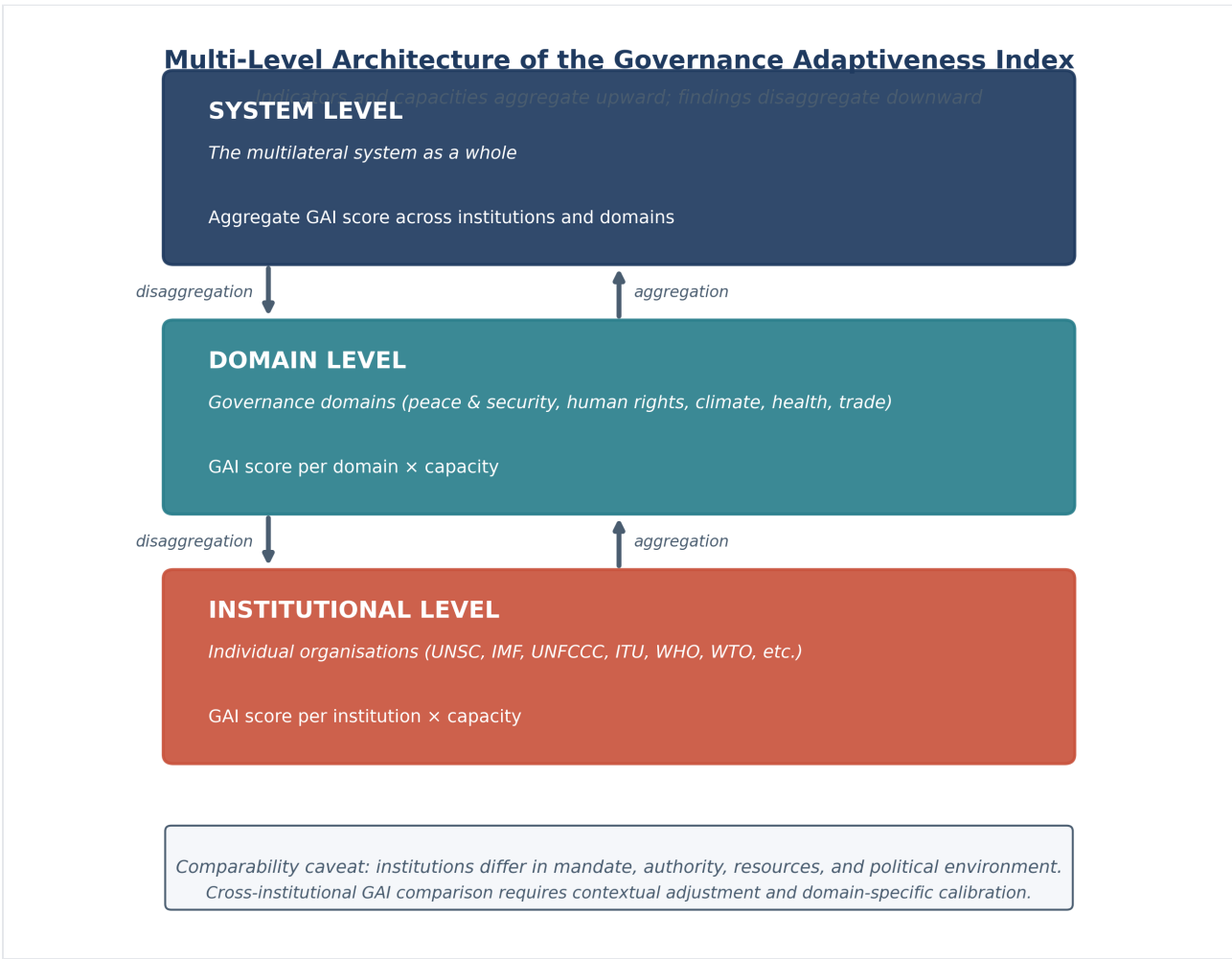


Figure 4. Multi-Level Architecture of the GAI

Indicators and capacities aggregate upward from the institutional level through the domain level to the system level. Findings can also be disaggregated downward to identify specific institutional or domain-level strengths and weaknesses.

Comparability across institutions is not automatic. The Security Council, the IMF, the UNFCCC and the ITU differ in mandate, authority, resources and political environment. Direct comparison of raw GAI scores across such heterogeneous institutions would risk misleading inferences. The framework therefore requires contextual adjustment: domain-specific calibration, mandate-relative scoring, and explicit treatment of institutional characteristics as conditioning variables rather than as confounds. Cross-institutional comparison is most

defensible within domains, where institutions share broadly similar mandates, and most hazardous across domains. This caveat is reflected in the GAI's multi-level architecture, which permits within-domain comparison as the primary analytical use of institutional scores while reserving system-level comparison for aggregated patterns.

7.2 Construct Architecture

The GAI's construct architecture follows the standard composite-indicator hierarchy specified in the OECD/JRC Handbook on Constructing Composite Indicators.[40] At the highest level sits the construct governance adaptiveness. This construct decomposes into four capacities — anticipatory, responsive, inclusive and learning. Each capacity decomposes into four sub-dimensions. Each sub-dimension is operationalised through one or more indicators drawn from existing data sources, expert assessment, or institutional document analysis. Indicators are normalised to a common scale, aggregated to sub-dimension scores, then to capacity scores, and finally to an overall GAI composite. The detailed measurement architecture is summarised in Table 3, which presents each sub-dimension with its illustrative indicators, potential data sources, measurement types and provisional scoring logic. Table 1 above provided the high-level conceptual framework; Table 3 operationalises that framework at the indicator level.

7.3 Indicator Selection Principles

Indicator selection follows seven principles drawn from composite-indicator best practice.[40][41] First, conceptual relevance: each indicator must have a clear theoretical link to the sub-dimension it operationalises. Second, data availability: indicators must be measurable using existing or feasibly collectable data. Third, comparability: indicators must permit comparison across institutions within domains and, where possible, across domains. Fourth, temporal sensitivity: indicators must be capable of detecting change over time, not only static levels. Fifth, non-redundancy: indicators must add information not already captured by other indicators in the same sub-dimension. Sixth, transparency: the construction of each indicator must be fully documented and reproducible. Seventh, replicability: another researcher using the same data and procedures must be able to reproduce the same scores.

7.4 Proposed Sub-Dimensions

Each capacity decomposes into four provisional sub-dimensions. Anticipatory capacity includes foresight infrastructure, early warning, horizon scanning, and anticipatory decision integration. Responsive capacity includes decision agility, resource flexibility, implementation mobilisation, and cross-institutional coordination. Inclusive capacity includes stakeholder diversity, meaningful participation, representational balance, and knowledge integration. Learning capacity includes evaluation infrastructure, institutional memory, lesson integration, and adaptive reform. These sub-dimensions are provisional; they will be refined through expert Delphi processes and pilot scoring in Phase II.

Table 3. Provisional Governance Adaptiveness Index Measurement Architecture

Capacity	Sub-Dimension	Illustrative Indicator	Potential Data Source	Measurement Type	Provisional Scoring Logic
Anticipatory	Foresight infrastructure	Existence of dedicated foresight unit	Institutional document analysis	Ordinal (presence/structure)	1 (none) – 5 (institutionalised unit linked to decision-making)
Anticipatory	Early warning	Quality of formal early-warning mechanisms	Expert assessment	Ordinal rubric	1 (ad hoc) – 5 (systematic, regularly updated)
Anticipatory	Horizon scanning	Frequency and scope of horizon-scanning exercises	Institutional reports	Count + qualitative	1 (none) – 5 (regular, multi-domain)
Anticipatory	Anticipatory decision integration	Evidence of foresight feeding formal decisions	Decision trace analysis	Ordinal rubric	1 (no evidence) – 5 (institutionalised integration)
Responsive	Decision agility	Median time from crisis onset to formal response	Crisis-response database	Continuous (logged)	1 (>180 days) – 5 (<30 days) — domain-relative
Responsive	Resource flexibility	Share of budget in unearmarked or rapidly deployable funds	Financial reports	Continuous (percentage)	1 (<10%) – 5 (>50%)
Responsive	Implementation mobilisation	Share of mandated actions implemented on schedule	Implementation reviews	Continuous (percentage)	1 (<25%) – 5 (>75%)

Capacity	Sub-Dimension	Illustrative Indicator	Potential Data Source	Measurement Type	Provisional Scoring Logic
Responsive	Cross-institutional coordination	Number and quality of formal inter-institutional coordination mechanisms	Document analysis	Count + ordinal	1 (none) – 5 (institutionalised, evaluated)
Inclusive	Stakeholder diversity	Range of stakeholder categories formally engaged	Participation records	Count (categorical)	1 (states only) – 5 (multi-stakeholder)
Inclusive	Meaningful participation	Evidence of stakeholder input shaping decisions	Decision trace analysis	Ordinal rubric	1 (presence only) – 5 (meaningful participation)
Inclusive	Representational balance	Geographic and income-group balance of decision-makers	Institutional demographics	Continuous (index)	1 (highly skewed) – 5 (broadly representative)
Inclusive	Knowledge integration	Use of scientific and technical input in deliberations	Document analysis	Ordinal rubric	1 (rare) – 5 (systematic)
Learning	Evaluation infrastructure	Existence and independence of evaluation functions	Institutional analysis	Ordinal rubric	1 (none) – 5 (independent, well-resourced)
Learning	Institutional memory	Quality of archives, knowledge management, lessons-learned databases	Document analysis	Ordinal rubric	1 (fragmented) – 5 (systematic)

Capacity	Sub-Dimension	Illustrative Indicator	Potential Data Source	Measurement Type	Provisional Scoring Logic
Learning	Lesson integration	Evidence of past evaluations informing subsequent decisions	Decision trace analysis	Ordinal rubric	1 (no evidence) – 5 (institutionalised)
Learning	Adaptive reform	Frequency of procedural or structural reform based on evaluation	Reform-tracking database	Count + qualitative	1 (none) – 5 (regular, evidence-driven)

Note: All indicators are illustrative and provisional. None has been empirically validated. Phase II of the AGG programme will conduct expert Delphi review, pilot scoring, and statistical validation of the candidate indicator set. Measurement logic is domain-relative where indicated.

7.5 Normalisation

Indicators measured in different units — counts, percentages, ordinal categories, qualitative assessments — must be normalised to a common scale before aggregation. The framework considers three principal approaches drawn from composite-indicator practice.[40][41] Min-max normalisation rescales each indicator to a 0-1 range based on observed or theoretical minima and maxima; it preserves ordinal information but is sensitive to outliers and to the choice of bounds. Z-score standardisation converts indicators to standard-deviation units relative to a reference distribution; it is useful for comparing relative positions but assumes interval-level measurement and meaningful distributions. Ordinal scoring assigns indicators to discrete categories based on rubric-defined thresholds; it is robust to measurement uncertainty but sacrifices information about distances between scores.

The framework does not commit to a single normalisation method at this stage. The final choice will depend on data characteristics (continuous, ordinal or categorical), measurement level, distributional properties, and cross-institutional comparability requirements established in Phase II. A hybrid approach is plausible: ordinal scoring for qualitatively assessed sub-dimensions, min-max normalisation for continuous indicators with clear theoretical bounds, and z-score standardisation for indicators best interpreted relative to a peer distribution. Regardless of the initial normalisation method, all indicator values must ultimately be transformed to a common 1–5 scale before sub-dimension and capacity aggregation. Methods such as z-score standardisation therefore cannot be averaged directly with rubric scores; they must first be rescaled or otherwise mapped to the common scoring range. Sensitivity analysis will test the robustness of GAI scores to alternative normalisation choices.

7.6 Scoring

The framework uses a five-point scoring rubric for ordinal assessments, with each score defined by explicit criteria. Score 1, minimal capacity, denotes the absence of any systematic institutional mechanism or evidence of sustained practice. Score 2, emerging capacity, denotes fragmented or pilot mechanisms with limited

institutional integration. Score 3, established capacity, denotes formal mechanisms that exist and are regularly applied, though with significant limitations. Score 4, advanced capacity, denotes institutionalised mechanisms with demonstrated integration into decision-making. Score 5, highly adaptive capacity, denotes institutionalised, regularly evaluated and demonstrably updated mechanisms with strong evidence of cross-system integration.

This rubric is provisional. It requires validation through expert review and inter-rater reliability testing before it can support comparative scoring. The criteria for each level are deliberately specified at a general level in this foundational paper; domain-specific rubrics will be developed in Phase II to reflect the heterogeneous institutional characteristics of different governance domains.

7.7 Weighting

The framework adopts equal weighting of the four capacities at this foundational stage, with each capacity contributing 25 percent to the overall GAI score. Equal weighting is chosen provisionally for three reasons. First, there are no sufficiently established theoretical or empirical grounds for assigning differential weights at the foundational stage. Second, equal weighting is transparent and replicable, simplifying interpretation and reducing the risk of implicit normative bias. Third, the alignment with established practice in foundational composite-indicator development, where equal weighting is commonly adopted pending validation.[40][42]

Equal weighting should not be interpreted as evidence that the four capacities are empirically of equal importance. Alternative weighting approaches are considered and will be tested in Phase II. Expert-derived weighting, through Delphi or conjoint elicitation, would assign weights based on structured expert judgment. Statistical weighting, through principal component analysis or factor analysis, would derive weights from the covariance structure of the indicators themselves. Factor-based weighting would weight capacities by their contribution to a latent adaptiveness factor. Normative weighting would assign differential weights based on theoretical or political priorities. Each approach has strengths and limitations; the choice among them is itself a methodological decision that the validation phase will address explicitly.

7.8 Aggregation

The framework adopts a provisional additive aggregation model. Each capacity score is the mean of its four sub-dimension scores (each on the 1-5 scale). The overall GAI score is the mean of the four capacity scores:

$$\text{GAI} = (\text{A} + \text{R} + \text{I} + \text{L}) / 4$$

where A, R, I and L are the capacity scores for anticipatory, responsive, inclusive and learning capacities respectively. This provisional additive aggregation model is labelled as such because it assumes compensability: strength in one capacity can offset weakness in another. The framework explicitly problematises this assumption. Can strength in inclusive capacity compensate for severe weakness in anticipatory capacity? Intuitively, no: an institution that consults widely but cannot anticipate emerging risks is unlikely to be adaptive in any meaningful sense, however strong its other capacities.

Alternative aggregation models are considered. Geometric aggregation, in which the GAI is the geometric mean of capacity scores, reduces compensability: low scores in any one capacity depress the overall score more strongly than under additive aggregation. Non-compensatory approaches, in which a minimum threshold must be met in each capacity, eliminate compensability entirely. Threshold models combine features of both, applying additive aggregation above minimum thresholds. Each approach embodies different assumptions about how capacities combine to produce adaptiveness. The framework does not commit to a final aggregation rule without validation; sensitivity analysis will compare results across additive, geometric and threshold approaches in Phase II.

8. Reliability, Validity and Robustness

Composite indicators are only as credible as the methodological apparatus through which they are constructed and validated.[40][41][42][43] This section presents the provisional reliability, validity and robustness strategy for the GAI. The strategy is comprehensive because the framework's credibility depends on demonstrating that the GAI measures what it claims to measure, that it does so consistently across raters and over time, and that its results are not artefacts of arbitrary methodological choices.

Content validity concerns whether the indicator set adequately represents the underlying construct. The framework proposes expert review and Delphi processes to assess content validity, structured around the question of whether the four capacities and their sixteen sub-dimensions capture the full scope of governance adaptiveness without redundancy. Construct validity concerns whether the indicators actually reflect the underlying theoretical construct. The framework adopts a tiered construct-validity strategy: first, expert and Delphi validation of the indicator-to-construct mapping; second, indicator correlation and redundancy analysis to identify empirical overlap among sub-dimensions; third, exploratory factor analysis where appropriate to detect underlying structure in pilot scoring data; and fourth, confirmatory factor analysis where sample size and data structure permit, testing whether the indicators load on the four capacity factors as theoretically specified. The higher-tier methods are conditional on the volume and quality of data that the validation phase is able to assemble; in domains where the number of scorable institutions is small, the lower-tier methods will carry the principal analytical weight.

Convergent validity concerns whether the GAI correlates with relevant existing measures. The framework proposes calibration against the Worldwide Governance Indicators, the Multilateralism Index, the SDG indicator framework, and the Sustainable Development Solutions Network's Index of Countries' Support for UN-based Multilateralism.[16][19][20] Convergent validity does not require identity with these measures; the GAI is designed to capture a distinct construct. But patterns of correlation should be theoretically interpretable: GAI scores should correlate more strongly with governance dimensions conceptually adjacent to adaptiveness and more weakly with dimensions conceptually distant.

Discriminant validity concerns whether the GAI measures something distinct from existing measures. The framework proposes multivariate or regression-based analysis where the available data permit, testing whether GAI scores explain variance in governance outcomes that cannot be explained by effectiveness, resilience, representation or institutional quality measures alone. Where sample size or data structure do not support multivariate analysis, the framework will rely on qualitative comparative analysis, pattern-matching against established cases, and expert judgment triangulated across multiple assessors. If the GAI adds no explanatory power beyond these existing constructs, its distinctiveness claim is empirically unsupported. Inter-rater reliability concerns whether different expert scorers produce similar scores when applying the rubric independently. The framework proposes double-scoring of a sample of institutions by independent experts, with inter-rater agreement assessed through Cohen's kappa or intraclass correlation coefficients. The framework explicitly does not promise regression-based discriminant validity analysis unless the eventual sample supports it; methodological ambition is calibrated to data feasibility rather than to aspirational standards.

Sensitivity analysis tests how results change under alternative methodological choices: alternative weights, alternative normalisation methods, alternative aggregation rules, and alternative indicator sets. Robust GAI scores should be relatively insensitive to reasonable methodological variation; scores that change substantially under alternative specifications indicate that the results are driven by methodological choices rather than by underlying institutional characteristics. Missing-data procedures must be transparent: the framework will document imputation rules, report the share of missing values, and test the sensitivity of results to alternative imputation strategies. Temporal comparability is a particular challenge: institutions change over time,

indicators are added and discontinued, and the meaning of specific scores may shift with context. The framework proposes establishing a stable core indicator set that can be tracked over time, supplemented by domain-specific indicators that may evolve. Table 4 consolidates the provisional validation and robustness strategy, mapping each methodological challenge to a proposed test, its analytical purpose, and the programme phase in which it will be addressed. None of the tests listed has yet been conducted; the table presents the planned Phase II agenda.

Table 4. Provisional GAI Validation and Robustness Strategy

Methodological Challenge	Proposed Test	Purpose	Planned Programme Phase
Content validity	Expert Delphi review of capacity and sub-dimension structure	Ensure construct comprehensively captures governance adaptiveness	Phase II
Construct validity	Tiered validation: expert/Delphi review; indicator correlation and redundancy analysis; exploratory factor analysis where appropriate; confirmatory factor analysis where sample size and data structure permit	Test whether indicators reflect the four-capacity construct as theoretically specified	Phase II
Convergent validity	Correlation analysis with WGI, MI, SDG indicators, SDSN multilateralism index	Assess whether GAI correlates with conceptually adjacent measures	Phase II
Discriminant validity	Multivariate or regression-based analysis where data permit; otherwise qualitative comparative analysis, pattern matching and expert triangulation	Confirm GAI measures something distinct from effectiveness, resilience, representation	Phase II–III
Inter-rater reliability	Independent double-scoring; Cohen's kappa or intraclass correlation	Ensure scoring is consistent across expert raters	Phase II
Sensitivity analysis	Robustness tests across weights, normalisation, aggregation, indicator sets	Test whether results depend on arbitrary methodological choices	Phase II
Missing-data robustness	Multiple imputation; sensitivity to imputation strategy	Ensure results are not driven by missing-data handling	Phase II
Pilot testing	Application to 2–3 institutions per domain	Identify practical methodological challenges before broader deployment	Phase II
Temporal stability	Repeated measurement over time; core indicator set tracking	Enable detection of change in institutional adaptive capacity	Phase II–IV

Note: This strategy is provisional and outlines planned Phase II activities. No validation has yet been conducted. The GAI as presented in this article remains a conceptual and provisional methodological architecture.

9. Mapping the Multilateral System's Adaptive Deficit

9.1 The Multilateralism Index 2024 as a Diagnostic Baseline

The Multilateralism Index 2024, published by the International Peace Institute and the Institute for Economics and Peace in October 2024, provides the most rigorous available empirical foundation for a preliminary diagnostic application of the framework.[16] The Index assesses changes in international cooperation between 2013 and 2023 across five domains — peace and security, human rights, climate action, public health and trade — along three dimensions: participation, performance and inclusivity. The Index uses 45 indicators, organised as 9 indicators per domain (3 for participation, 4 for performance, 2 for inclusivity), with equal weighting and scores banded on a 0–100 scale.[16]

The Index's headline findings are striking. Participation, the degree to which states engage with multilateral institutions and processes, has remained robust and even increased in several domains: 73 percent of participation indicators improved over the decade. Performance, the degree to which multilateral action translates into concrete outcomes, has declined across every domain, with 55 percent of performance indicators deteriorating. Inclusivity, the degree to which diverse stakeholders are engaged in multilateral processes, has shown broad improvements, with 90 percent of inclusivity indicators improving.[16][17][18] The pattern is summarised in Figure 5.

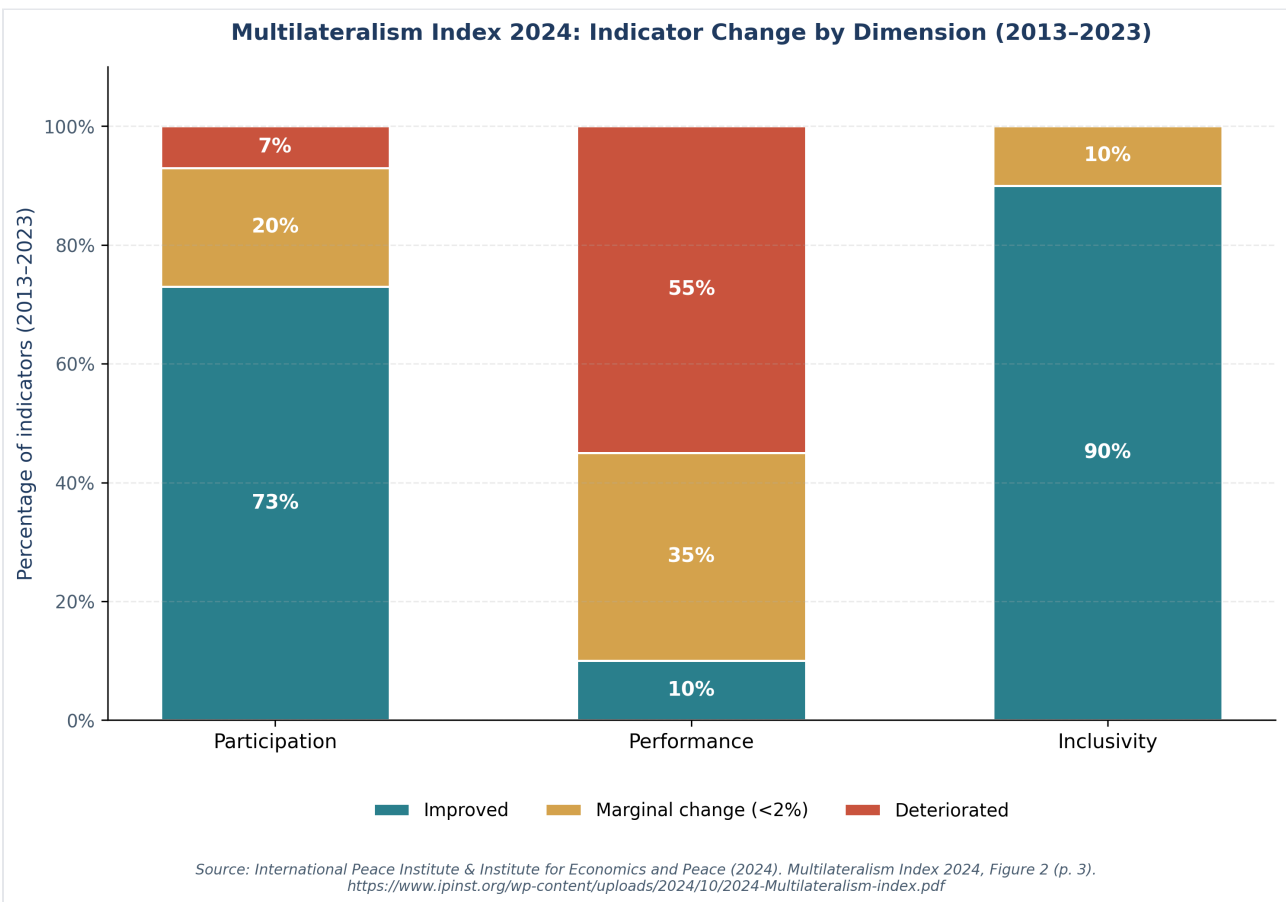


Figure 5. Multilateralism Index 2024: Indicator Change by Dimension (2013–2023)

Source: *International Peace Institute & Institute for Economics and Peace (2024). Multilateralism Index 2024, Figure 2 (p. 3). Verified data only.*

Two additional findings merit emphasis. First, peace and security saw the largest decline in performance of any domain. Active armed conflicts rose from 39 in 2013 to 55 in 2022; the number of peace agreements declined sharply; lasting peace agreements fell from approximately 50 percent in 2003–2013 to less than 20 percent in 2013–2023; and the Security Council passed fewer resolutions in 2023 than in any year since 2013, with seventeen vetoes cast on thirteen resolutions between 2020 and 2023.[16] Second, trade is the only domain in which both participation and performance declined. The World Trade Organization's Appellate Body became non-operational after the United States blocked new appointments, and WTO dispute consultation requests fell to an all-time low in 2020, with only six requests in 2023.[16]

9.2 Mapping MI 2024 onto the ARIL Framework

Mapping these findings onto the GAI's four-capacity framework requires analytical care. The exercise is a preliminary conceptual mapping rather than a completed empirical estimation of the Governance Adaptiveness Index. The MI dimensions do not correspond exactly to the GAI capacities, and the mapping should not be read as a direct measurement of the GAI. Three points of correspondence and three points of non-correspondence are particularly important.

On the correspondence side, the MI's performance dimension is a partial proxy for responsive capacity: declining performance across every domain indicates weaknesses in the multilateral system's ability to translate decisions into outcomes. The MI's inclusivity dimension is a partial proxy for inclusive capacity: broad improvements in NGO engagement and women's representation suggest that the formal inclusion of non-state actors and women in multilateral processes has strengthened. The MI's participation dimension captures state engagement but is distinct from inclusive capacity as the GAI defines it; participation tracks who attends, while inclusive capacity tracks whether attendance translates into influence and meaningful participation.

On the non-correspondence side, the MI does not directly measure anticipatory capacity. The Index tracks engagement, outcomes and inclusion but not the existence or quality of foresight, horizon scanning or early warning. This reveals an important measurement gap: the MI provides no basis for a substantive inference about the strength or weakness of anticipatory capacity. Similarly, the MI does not directly measure learning capacity. The Index tracks performance outcomes but not whether institutions evaluate those outcomes, integrate lessons, or adapt their procedures in response. The absence of learning metrics therefore identifies a measurement gap rather than evidence that learning capacity is substantively weaker than the other capacities. Table 2 summarises these points of correspondence and non-correspondence, identifying the partial proxies that the MI provides for two of the four GAI capacities and the diagnostic gaps that the absence of MI equivalents for the other two capacities creates.

Table 2. Preliminary Mapping of the Multilateralism Index onto the ARIL Framework

GAI Capacity	MI 2024 Dimension	Mapping Relationship	Diagnostic Inference (Provisional)
Anticipatory	No direct MI equivalent	No corresponding dimension in MI 2024	Measurement gap: MI 2024 provides no basis for a substantive inference about anticipatory capacity.
Responsive	Performance (partial proxy)	Partial overlap; performance captures outcomes but not decision or mobilisation processes	Performance declines are consistent with responsive-capacity constraints, but performance is only a partial proxy for responsiveness.
Inclusive	Participation + Inclusivity (partial proxies)	Participation tracks state engagement; inclusivity tracks non-state and gender inclusion	Improved participation and inclusivity provide evidence consistent with relatively strong inclusive capacity, but depth of influence remains unmeasured.
Learning	No direct MI equivalent	No corresponding dimension in MI 2024	Measurement gap: MI 2024 provides no basis for a substantive inference about learning capacity.

Source: Authors' analysis based on International Peace Institute & Institute for Economics and Peace (2024), Multilateralism Index 2024. The mapping is conceptual and provisional. The MI 2024 does not directly measure the GAI; this table identifies partial proxies and diagnostic gaps only.

9.3 Diagnostic Interpretation: The Participation–Performance Paradox

The central pattern revealed by the mapping is what may be termed the participation–performance paradox: participation in the multilateral system has remained robust while performance has declined. This pattern is consistent with several analytically distinct interpretations, which the framework treats as hypotheses for subsequent investigation rather than as conclusively established causal findings.

Interpretation one holds that participation does not automatically generate effective collective action. Broader participation can increase legitimacy and information without producing the convergence required for decisive response, particularly on questions where interests diverge sharply. Interpretation two holds that more actors can improve legitimacy while increasing coordination complexity. As the number of veto players and consultative partners grows, the cost of reaching decision increases, and the speed of response declines. Interpretation three holds that institutional participation may remain stable even when decision-making capacity deteriorates. Formal engagement continues — meetings are held, resolutions adopted, reports produced — while the substantive content of decisions erodes. Interpretation four holds that political fragmentation can reduce responsiveness even when formal institutional engagement remains high. States participate but use their participation to block, dilute or contest rather than to cooperate.

These four interpretations are not mutually exclusive. The actual mechanism is likely a combination of all four, varying across domains and institutions. The diagnostic value of the AGG framework is that it provides the analytical architecture to test these interpretations empirically in Phase III case studies. Critically, the framework does not claim that the MI 2024 data establish any particular causal mechanism. The data establish the pattern;

the interpretation requires the more fine-grained institutional analysis that the AGG programme will conduct in subsequent phases.

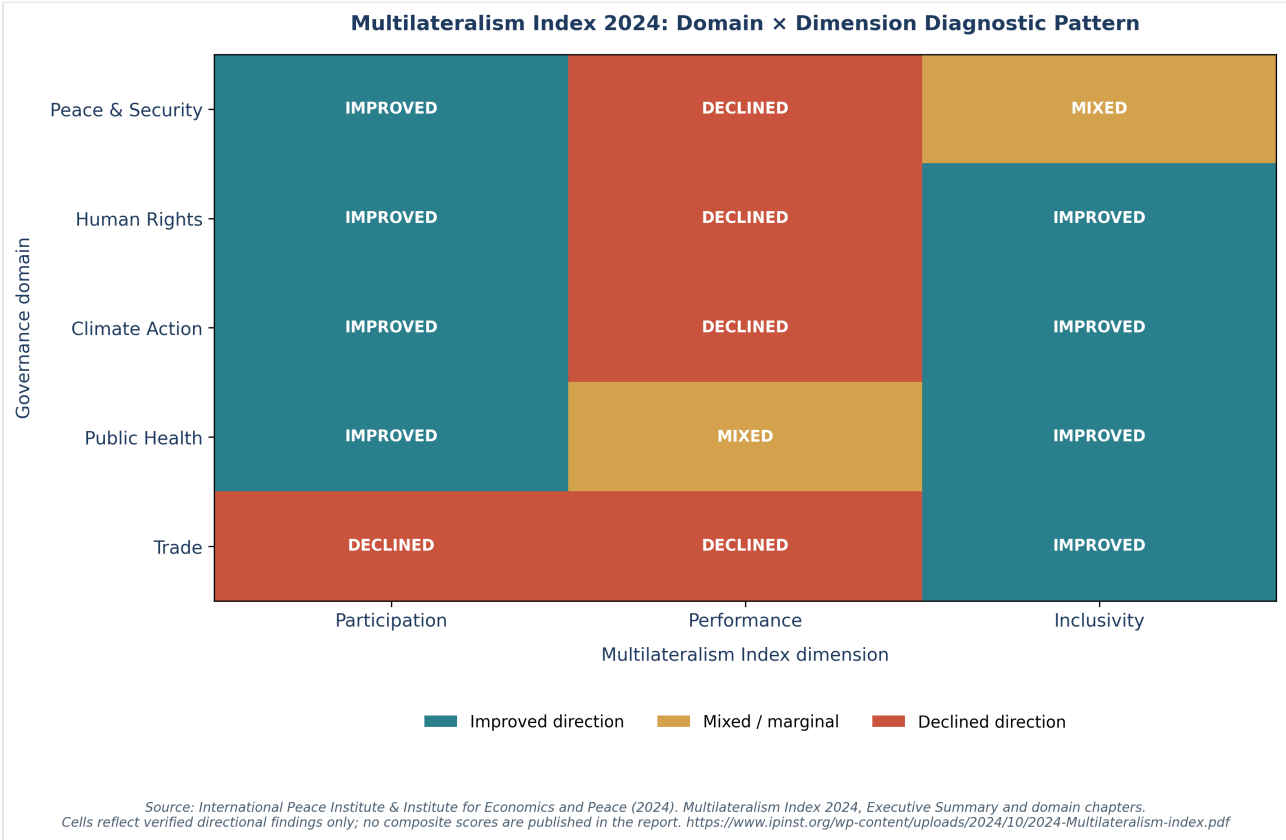


Figure 6. Multilateralism Index 2024: Domain × Dimension Diagnostic Pattern

Source: International Peace Institute & Institute for Economics and Peace (2024). Multilateralism Index 2024, Executive Summary and domain chapters. Cells reflect verified directional findings only; no composite scores are published in the report.

Figure 6 represents the domain-level pattern in summary form. The cells reflect directional findings verified from the MI 2024 report's text and executive summary: improved direction (teal), mixed or marginal change (amber), and declined direction (coral). The figure does not display composite scores, because the MI 2024 report does not publish a numeric table of composite scores. The directional pattern is nonetheless analytically informative. Performance declined across every domain. Participation declined only in trade. Inclusivity improved across every domain. The pattern is consistent across domains with sufficient variation to suggest that the participation–performance paradox is a system-wide feature of contemporary multilateralism rather than a domain-specific anomaly.

10. The Political Economy of Governance Adaptation

Adaptiveness is not merely a technical capacity problem. It is conditioned by political incentives and the distribution of power in the international system. This section examines the political economy of governance adaptation, identifying the structural and strategic factors that enable or constrain adaptive behaviour. The framework treats political economy as analytically central rather than as a residual category to be acknowledged in a limitations section.

Several political-economy dynamics are particularly important. First, power asymmetry. The multilateral system's formal architecture reflects the distribution of power at its founding moments, and reform of that architecture depends on the consent of those who benefit from existing arrangements. Permanent members of the Security Council can veto changes to the Council's composition; major shareholders of the Bretton Woods institutions can block changes to voting weights; powerful states generally can resist changes that would redistribute influence away from them.[5][6][7] Adaptive reforms that threaten incumbent power are therefore politically constrained regardless of their technical merit.

Second, veto players. The number of actors whose consent is required for institutional change is large in multilateral settings. Security Council reform requires the consent of two-thirds of the General Assembly and all permanent members; treaty amendments often require supermajority or universal ratification; budgetary changes require consensus or near-consensus. The proliferation of veto players raises the cost of adaptive reform and increases the likelihood of gridlock.[22] Third, institutional incumbency. The bureaucracies of international organisations develop their own interests, cultures and routines, which can resist adaptive change even when member states support it.[38] Path dependence operates not only through formal rules but through organisational cultures, professional identities and sunk costs in specialised expertise.

Fourth, distributional consequences of reform. Adaptive change typically produces winners and losers. Reforms that strengthen anticipatory capacity may shift resources away from established programmes; reforms that strengthen learning capacity may expose failures that powerful actors prefer to keep obscure; reforms that strengthen inclusive capacity may redistribute influence from established players to new entrants. The distributional consequences of adaptive reform are often political rather than technical, and they generate corresponding political resistance. Fifth, resistance to information sharing. Anticipatory and learning capacities depend on the flow of information across institutional and national boundaries. Sovereignty concerns, classification practices, organisational self-protection and strategic reticence all restrict information flows in ways that limit adaptiveness.

Sixth, incentives against learning. Institutions may have institutional incentives against learning when learning exposes failure, threatens reputational interests, redistributes power, or challenges established procedures.[38] [46] Evaluation functions may be understaffed, underresourced, or structurally insulated from decision-making; lessons identified may not be integrated into subsequent practice; institutional memory may be lost through personnel turnover. Seventh, the political costs of anticipatory action. Acting on foresight requires accepting costs in the present to prevent uncertain harms in the future. Politically, the costs of action are concentrated and visible while the benefits of avoided harm are diffuse and counterfactual. This asymmetry creates systematic incentives against anticipatory action even when anticipatory capacity exists.

Recognising these political-economy dynamics has analytical implications. A high GAI score would not automatically translate into adaptive outcomes if political constraints prevent the activation of adaptive capacities. Conversely, a low GAI score may reflect political constraints rather than technical deficiencies. The AGG framework therefore treats political economy as a conditioning variable that interacts with adaptive capacities to produce observed outcomes. Case studies in Phase III will examine this interaction explicitly, asking not only whether institutions are adaptive but why some are more adaptive than others and what political conditions enable or constrain adaptive behaviour.

11. Failure Modes of Governance Adaptation

The four-capacity framework enables systematic identification of the ways in which governance adaptation can fail. This section identifies six failure modes, each corresponding to a particular misalignment among the four capacities. The failure modes are analytically distinct but may coexist empirically. Their identification

contributes original analytical value by specifying the pathways through which adaptive deficits manifest, beyond the aggregate measure provided by the GAI.

11.1 Anticipation Without Action

Institutions identify risks but fail to respond. Foresight infrastructure produces warnings, horizon scanning identifies emerging threats, scenario planning generates plausible futures, but decision-making does not translate these into action. This failure mode is well documented in the climate domain, where scientific warnings have accumulated for decades without commensurate policy response, and in the pandemic preparedness domain, where numerous pre-COVID-19 warnings did not produce the institutional response that the warnings warranted.[8][15] Anticipation without action reflects a breakdown in the link between anticipatory and responsive capacity, often attributable to political costs of anticipatory action identified in Section 10.

11.2 Action Without Anticipation

Institutions respond rapidly but only after crises escalate. The institution lacks foresight infrastructure or fails to act on its outputs, and is therefore forced to respond reactively when crises become acute. Reactive response is typically more expensive, more disruptive and less effective than anticipatory action would have been. This failure mode is common in humanitarian response, where the multilateral system mobilises impressively after disasters but invests less in early warning and preventive action.[16] Action without anticipation reflects underdeveloped anticipatory capacity combined with reactive responsive capacity.

11.3 Inclusion Without Influence

Stakeholders participate without affecting decisions. The institution hosts observers, conducts consultations, and publishes participation records, but the substantive content of decisions is shaped elsewhere. This failure mode corresponds to the distinction introduced in Section 6.3 between presence, consultation, influence and meaningful participation. Numerical participation metrics may improve while the depth of participation stagnates. Inclusion without influence may erode the legitimacy gains that inclusion is intended to produce, as stakeholders come to regard participation as tokenistic.[14]

11.4 Learning Without Institutional Change

Evaluations produce lessons that are never integrated. The institution conducts evaluations, documents lessons learned, and may even publish them, but its subsequent procedures, mandates and decisions do not change. This failure mode corresponds to the distinction between single-loop and double-loop learning introduced in Section 4.5: evaluations may produce single-loop adjustments (tweaks within existing mandates) without producing double-loop learning (re-examination of governing variables). Learning without institutional change is particularly common in large bureaucracies where evaluation functions are structurally insulated from decision-making.[38][46]

11.5 Adaptation Without Coordination

Individual institutions adapt while the wider system becomes fragmented. Each institution may improve its own anticipatory, responsive, inclusive or learning capacities, but the absence of coordination among them produces redundancy, contradiction, gaps and duplication at the system level. This failure mode is particularly relevant to polycentric governance arrangements, where the absence of effective metagovernance can convert institutional-level adaptation into system-level fragmentation.[36][37][44] Adaptation without coordination is the system-level analogue of action without anticipation: institutions act adaptively but the system as a whole does not.

11.6 Reform Without Adaptiveness

Formal structural reform occurs without improving institutional learning or responsiveness. Mandates are revised, structures are reorganised, memberships are expanded, but the underlying adaptive capacities remain unchanged. This failure mode is the diagnostic counterpart of the distinction between reform and adaptiveness introduced in Section 5.4. Reform without adaptiveness is particularly insidious because it generates the appearance of progress while leaving the underlying adaptive deficit intact. The history of UN development system reform provides multiple examples: decades of restructuring have not always translated into improved anticipation, responsiveness or learning. Table 5 consolidates the six failure modes, presenting each with its description, typical institutional manifestation, and adaptive consequence. The typology is analytical rather than empirical; the failure modes are analytically distinct but may coexist empirically, and their validation against systematic institutional evidence is reserved for the AGG programme's Phase III case studies.

Table 5. Failure Modes of Governance Adaptation

Failure Mode	Description	Institutional Manifestation	Adaptive Consequence
Anticipation without action	Risks identified but not acted upon	Foresight exists; decision-making does not respond	Warnings accumulate; crises materialise that could have been prevented
Action without anticipation	Response only after crises escalate	Reactive mobilisation; underdeveloped foresight	Higher costs, less effective response, erosion of credibility
Inclusion without influence	Stakeholders participate without shaping decisions	High participation metrics; low influence metrics	Tokenistic engagement; legitimacy gains erode over time
Learning without institutional change	Lessons identified but not integrated	Evaluations produced; procedures unchanged	Single-loop learning only; past mistakes repeated
Adaptation without coordination	Institutions adapt; system fragments	Individual institutions improve; system-level coordination declines	Redundancy, contradiction, gaps; system-level maladaptation
Reform without adaptiveness	Structural reform without capacity improvement	Mandates revised; adaptive capacities unchanged	Appearance of progress; underlying deficit persists

Authors' analysis. The six failure modes are analytically distinct but may coexist empirically. Each corresponds to a particular misalignment among the four adaptive capacities.

12. Adaptiveness, Legitimacy and Accountability: Managing Institutional Trade-Offs

Adaptiveness should not be understood as maximising speed or flexibility at the expense of democratic legitimacy, legality or accountability. The framework treats the relationship between adaptiveness and these normative commitments as one of managed tension rather than as a zero-sum trade-off. This section identifies five specific tensions and considers how the GAI framework addresses each.

12.1 Speed versus Deliberation

Adaptive governance requires timely response, but timely response can conflict with the deliberative processes through which legitimacy is constructed. Multilateral institutions typically require extensive consultation, negotiation and consensus building before action, which slows response but enhances legitimacy. Faster decision-making through smaller groups, emergency powers or delegated authority can improve responsiveness but may erode the inclusiveness that legitimises decisions. The framework treats this tension as fundamental: optimal adaptive governance is not maximally fast but appropriately fast given the legitimacy requirements of the context. The GAI's responsive dimension is therefore specified to include proportionality and legitimacy safeguards alongside speed.

12.2 Flexibility versus Predictability

Adaptive governance requires the flexibility to adjust to changing conditions, but flexibility can conflict with the predictability that legal systems, markets and citizens rely upon. International law functions partly through the stability of commitments; markets depend on predictable regulatory environments; citizens need stable expectations to plan their lives. Excessive flexibility can undermine these functions even as it improves adaptiveness to specific shocks. The framework recognises that adaptiveness requires a balance: sufficient flexibility to respond to changing conditions, sufficient stability to preserve the functions that predictability enables.

12.3 Inclusion versus Decision-Making Efficiency

Adaptive governance benefits from diverse participation, but broad participation can increase the cost and complexity of reaching decisions. The participation–performance paradox identified in Section 9.3 may partly reflect this tension: as participation broadens, decision-making can become more demanding even as legitimacy and information improve. The framework treats this tension as empirical rather than purely theoretical: the net effect of inclusion on decision-making capacity depends on the design of participatory processes, the quality of facilitation and the substantive issues at stake. Inclusive capacity in the GAI is therefore specified to capture depth of participation (influence, meaningful participation) rather than only breadth.

12.4 Experimentation versus Accountability

Adaptive governance benefits from experimentation, but experimentation can conflict with accountability for outcomes. Pilot programmes, policy experiments and innovative approaches generate learning but may produce failures for which institutions are held accountable. The risk of accountability for failed experiments can create incentives against experimentation, even when experimentation would improve long-term adaptiveness. The framework recognises that this tension requires institutional design: experimentation requires clear ex ante authorisation, transparent evaluation and shared learning from failure, so that accountability supports rather than suppresses adaptive behaviour.

12.5 Decentralisation versus Coordination

Adaptive governance may benefit from decentralised, polycentric structures, but decentralisation can produce coordination failures, accountability gaps and the fragmentation identified as a failure mode in Section 11.5.

The framework treats this tension as central to the design of adaptive governance: polycentricity creates opportunities for adaptation but requires metagovernance capacity to convert those opportunities into outcomes.[44][45] The GAI's responsive dimension includes cross-institutional coordination as a sub-dimension, recognising that coordination capacity is the bridge between structural polycentricity and adaptive outcomes.

13. Counterarguments and Limitations

The AGG framework is subject to several important limitations that must be acknowledged at this foundational stage. The framework addresses each limitation through conceptual specification, methodological design, or explicit recognition of the boundaries of what the framework can and cannot do. This section addresses eight categories of limitation.

13.1 Conceptual Overreach

The concept of governance adaptiveness may be criticised as excessively broad, potentially encompassing every desirable attribute of effective governance and thereby losing analytical specificity. If adaptiveness includes anticipation, responsiveness, inclusiveness and learning, it risks becoming a synonym for good governance rather than a distinct analytical construct. The framework addresses this concern in three ways. First, Section 5 distinguishes governance adaptiveness from six adjacent concepts through explicit conceptual differentiation. Second, each capacity is grounded in specific, measurable indicators rather than aspirational criteria. Third, the relationships among the four capacities are theoretically derived from the adaptive governance cycle rather than aggregated post hoc. Nevertheless, the risk of conceptual overreach will need to be monitored as the framework is operationalised, and the validation phase includes discriminant validity testing precisely to test whether the GAI measures something distinct.

13.2 Measurement Subjectivity

The GAI's reliance on expert assessment for several sub-dimensions introduces methodological challenges familiar from other composite indices, including the Worldwide Governance Indicators and the Human Development Index.[19][40][43] Expert assessment is necessarily subjective, and different experts may produce different scores when assessing the same institution. The framework addresses this challenge through inter-rater reliability testing (Section 8), structured scoring rubrics that reduce ambiguity, and the documentation of expert credentials and potential conflicts of interest. The inherent subjectivity of some dimensions of governance adaptiveness, particularly learning capacity, means that the GAI will always be, to some degree, a construct whose value depends on the rigour and transparency of its methodology rather than on the objectivity of its underlying data.

13.3 Indicator Selection

The choice of indicators involves risks of arbitrary selection, redundancy and double counting. Indicators may be selected because they are measurable rather than because they are theoretically central; indicators within the same sub-dimension may overlap in what they measure; indicators across sub-dimensions may inadvertently capture the same underlying phenomenon. The framework addresses these risks through the seven indicator selection principles specified in Section 7.3, through expert Delphi review of the indicator set in Phase II, and through statistical analysis of indicator redundancy and factor structure. The indicator set presented in Table 3 is explicitly provisional; it will be revised through validation.

13.4 Aggregation

The aggregation of indicators into a single composite score involves assumptions about compensability, weighting and ranking stability that may not hold empirically. The framework's provisional additive aggregation model assumes that strength in one capacity can compensate for weakness in another, an assumption explicitly problematised in Section 7.8. Alternative aggregation models — geometric, non-compensatory, threshold — embody different assumptions and may produce different rankings. The framework addresses this challenge through sensitivity analysis across aggregation rules, transparent reporting of aggregation choices, and the publication of capacity-level scores alongside the overall GAI composite so that users can interpret patterns that the composite may obscure.

13.5 Cross-Institutional Comparability

Institutions differ in mandate, authority, resources and political environment, making direct comparison of GAI scores across heterogeneous institutions hazardous. The Security Council's anticipatory capacity cannot be directly compared to the ITU's anticipatory capacity without contextual adjustment for their radically different mandates and political environments. The framework addresses this challenge through the multi-level architecture presented in Section 7.1: within-domain comparison is the primary analytical use of institutional scores, while cross-domain comparison is reserved for aggregated patterns at the system level. Mandate-relative scoring and the treatment of institutional characteristics as conditioning variables further reduce the risk of misleading comparison.

13.6 Causality

A high GAI score would not automatically prove that adaptiveness causes better governance outcomes. The relationship between adaptive capacity and governance outcomes is itself an empirical question that requires testing. Institutions with high GAI scores may produce poor outcomes because of political constraints, resource limitations or environmental conditions that exceed any institution's adaptive capacity. Conversely, institutions with low GAI scores may produce adequate outcomes in stable conditions that do not require adaptive capacity. The framework treats the causal relationship between adaptiveness and outcomes as a question for Phase III case studies, which will examine whether, how and under what conditions adaptive capacity produces better governance outcomes.

13.7 Political Power

Measurement does not itself overcome political resistance. The GAI may identify adaptive deficits precisely, but identification does not produce the political will to address them. The political economy dynamics examined in Section 10 — power asymmetry, veto players, institutional incumbency, distributional consequences of reform — will continue to constrain adaptive change regardless of how well the GAI measures adaptive capacity. The framework acknowledges this limitation explicitly: the GAI is an analytical tool, not a political instrument. Its policy value depends on political conditions that the framework itself cannot create but that the framework's diagnostic outputs may help to inform.

13.8 Normative Questions

The framework raises normative questions that measurement alone cannot resolve. Who decides what counts as adaptive? Could an emphasis on adaptiveness favour speed over deliberation, flexibility over predictability, experimentation over accountability, decentralisation over coordination? Section 12 has identified these tensions explicitly. The framework treats them as requiring ongoing normative engagement rather than as resolvable through technical specification. The GAI is designed to measure adaptive capacity, not to prescribe a particular balance between adaptiveness and competing normative commitments. The framework explicitly recognises that maximising adaptiveness is not the same as maximising good governance, and that the

relationship between adaptiveness and other normative goods requires continuous attention from scholars, practitioners and affected publics.

14. Policy Implications

The framework's policy implications are organised by adaptive capacity rather than presented as generic recommendations. This organisation reflects the framework's central analytical claim: adaptive reform must build specific capacities, not simply adjust formal structures. The implications developed here are not universal prescriptions. They require contextual adaptation to specific institutional mandates, political environments and resource constraints, and they should be understood as illustrative of the kinds of interventions the framework supports rather than as a comprehensive reform agenda.

14.1 Anticipatory Capacity

Strengthening anticipatory capacity requires investment in foresight infrastructure, horizon scanning and early warning systems, and crucially in the integration of foresight into formal decision-making. The Pact for the Future's emphasis on building capabilities to anticipate risks, seize opportunities and act early provides a political mandate for such investment.[3] Concrete interventions include the establishment or strengthening of dedicated foresight units within international institutions, the creation of cross-institutional horizon-scanning networks, the formal integration of foresight outputs into decision-making processes, and the development of anticipatory decision protocols that specify how identified risks will be addressed.

14.2 Responsive Capacity

Strengthening responsive capacity requires investment in contingency mechanisms, flexible financing and cross-institutional coordination. The chronic delays in multilateral crisis response documented in the Multilateralism Index 2024 reflect not only political disagreement but also structural features of how decisions are made and resources are mobilised.[16] Concrete interventions include pre-authorised contingency mechanisms that can be activated without full intergovernmental deliberation, subject to explicit safeguards: clearly defined legal authority specifying the scope and triggers of such mechanisms; proportionality criteria linking the scale of response to the severity of the triggering event; transparency requirements mandating prompt disclosure of activation, scope and resource use; defined time limits after which the mechanism lapses unless renewed through normal intergovernmental process; mandatory ex post review by the relevant intergovernmental body; and accountability mechanisms ensuring that misuse or overreach can be identified and corrected. Such mechanisms are intended to compress decision time within legitimate constraints, not to bypass democratic legitimacy or accountability. Additional interventions include flexible financing arrangements that reduce the dependence of institutions on earmarked contributions, standing coordination mechanisms across institutions with overlapping mandates, and the development of proportionality criteria to guide the scale and form of response. The normative trade-offs identified in Section 12 apply with particular force to these responsive-capacity interventions: speed must remain subject to deliberation, flexibility to predictability, and experimentation to accountability.

14.3 Inclusive Capacity

Strengthening inclusive capacity requires moving beyond numerical participation toward meaningful participation and influence. The MI 2024 finding that participation has remained robust while performance has declined suggests that current participation arrangements are not translating into effective collective action. [16] Concrete interventions include structured mechanisms for stakeholder input into agenda-setting (not only consultation on pre-formed proposals), transparent documentation of how stakeholder input shapes decisions,

dedicated support for Global South voice and small-state participation, and the integration of scientific and technical input through formalised expert advisory mechanisms. The distinction between presence, consultation, influence and meaningful participation introduced in Section 6.3 provides the analytical basis for evaluating such interventions.

14.4 Learning Capacity

Strengthening learning capacity requires investment in evaluation infrastructure, institutional memory and structured lesson integration. The MI 2024 does not measure learning capacity directly, making this dimension a priority for validation rather than a basis for ranking it as the weakest capacity. Concrete interventions include independent and adequately resourced evaluation functions, mandatory lesson-integration processes that require decision bodies to consider evaluation findings, knowledge-management systems that preserve institutional memory across personnel transitions, and structured ex post review of major decisions. The distinction between single-loop and double-loop learning is relevant here: most multilateral institutions engage in some form of single-loop learning, but few engage in double-loop learning that re-examines governing variables and assumptions.

14.5 Contextual Variation

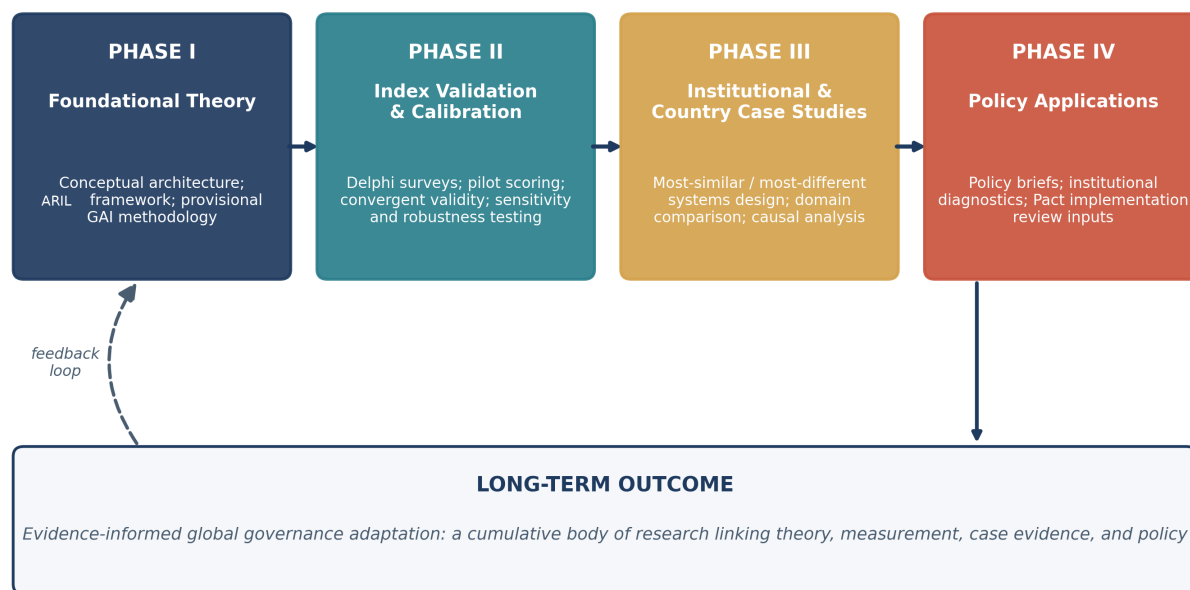
These implications are not universally applicable prescriptions. Institutions vary in their starting adaptive capacities, their mandates, their political environments and their resources. An institution with strong anticipatory capacity but weak learning capacity requires different interventions from an institution with the reverse profile. The GAI's diagnostic value lies precisely in its capacity to identify which adaptive capacities are strong and which are weak in specific institutions and domains, thereby enabling targeted rather than generic interventions. Policy applications in Phase IV of the AGG programme will develop these implications in detail for specific institutions and domains, in dialogue with the practitioners responsible for implementation.

15. The Adaptive Global Governance Research Programme

This article constitutes the foundational theory contribution to the Adaptive Global Governance research programme, a coordinated multi-phase research initiative designed to produce a cumulative body of knowledge on how multilateral institutions can become more adaptive. The programme is structured around four sequential phases, each building on the outputs of its predecessor and contributing to a long-term outcome of evidence-informed global governance adaptation. Figure 7 represents the programme architecture.

The Adaptive Global Governance Research Programme Architecture

Four sequential phases with feedback loops



Each phase: research objective → key methods → expected output → methodological challenge → contribution to subsequent phases

Figure 7. The Adaptive Global Governance Research Programme Architecture

Four sequential phases — foundational theory, index validation and calibration, institutional and country case studies, and policy applications — with feedback loops linking the long-term outcome back to foundational theory.

15.1 Phase I: Foundational Theory (This Paper)

Phase I, the present paper, establishes the theoretical framework, introduces the GAI, and demonstrates its diagnostic utility through a preliminary mapping. The research objective is conceptual and methodological: to define governance adaptiveness, distinguish it from adjacent concepts, develop the four-capacity ARIL framework, and specify the provisional measurement architecture of the GAI. The key methods are theoretical synthesis, conceptual differentiation, and provisional operationalisation. The expected output is this foundational theory paper. The key methodological challenge is maintaining analytical specificity while covering the breadth of theoretical resources required. The contribution to subsequent phases is the conceptual and methodological foundation on which they will build.

15.2 Phase II: Index Validation and Calibration

Phase II will focus on index validation and calibration. The research objective is to test whether the provisional GAI architecture can be empirically operationalised with acceptable reliability and validity. The key methods are expert Delphi surveys to refine the indicator set and assess the relative importance of the four capacities; pilot scoring of a sample of institutions across two or three governance domains; statistical analysis, including confirmatory factor analysis where data permit; convergent validity testing against existing governance datasets; and sensitivity analysis across alternative methodological choices. The expected output is a validated GAI methodology and an initial set of GAI scores for pilot institutions. The key methodological challenge is

securing adequate data for indicators that current institutional practice does not routinely collect, particularly for anticipatory and learning capacities. The contribution to subsequent phases is a measurement instrument ready for systematic application.

15.3 Phase III: Institutional and Country Case Studies

Phase III will apply the validated GAI to a carefully selected set of institutional and national contexts. The research objective is to examine how specific multilateral bodies and national governance systems score on the four adaptive capacities, what explains variation in their performance, and whether and how adaptive capacity relates to governance outcomes. Case-selection logic will combine most-different systems design (to test the framework's applicability across heterogeneous institutions), most-similar systems design (to isolate the determinants of variation among similar institutions), and domain comparison (to examine how domain characteristics shape adaptive capacity). The expected output is a set of case-study reports and a comparative analysis identifying patterns and determinants of adaptive capacity. The key methodological challenge is securing adequate access to institutional decision-making processes for the fine-grained analysis that case studies require.

15.4 Phase IV: Policy Applications

Phase IV will translate the research findings into actionable policy recommendations. The research objective is to ensure that the AGG programme's analytical contributions have concrete policy impact, particularly in informing the Pact for the Future's implementation review scheduled for the beginning of the eighty-third session of the General Assembly in 2027. The key methods are policy brief development, institutional diagnostics, dialogue with practitioners, and timed engagement with policy processes. The expected output is a series of policy briefs, institutional diagnostic reports, and engagement with the Pact implementation review. The key methodological challenge is translating scholarly findings into policy-relevant forms without collapsing scholarship into advocacy. The framework's policy value depends on maintaining analytical integrity while engaging seriously with policy imperatives.

15.5 Programme-Wide Considerations

Three programme-wide considerations apply across all four phases. First, the programme is cumulative: each phase builds on the outputs of its predecessor, and findings from later phases may necessitate revision of earlier outputs, indicated by the feedback loop in Figure 7. Second, the programme is iterative: validation findings from Phase II may require revision of the conceptual framework developed in Phase I; case-study findings from Phase III may require revision of the validated methodology from Phase II. Third, the programme is transparent: all methodological choices, data sources, and analytical decisions will be documented and made available for scrutiny, in keeping with the principles of scientific integrity and the requirements of composite-indicator best practice.[40][41] Table 6 consolidates the four-phase architecture, presenting each phase with its research objective, key methods, expected output, and key methodological challenge. The table makes explicit the cumulative and iterative logic of the programme: each phase contributes to its successor while remaining open to revision in light of subsequent findings.

Table 6. The AGG Research Programme: From Theory to Policy

Phase	Research Objective	Key Methods	Expected Output	Key Methodological Challenge
I. Foundational Theory (this paper)	Define adaptiveness; develop ARIL framework; specify provisional GAI architecture	Theoretical synthesis; conceptual differentiation; provisional operationalisation	Foundational theory paper (this article)	Maintaining analytical specificity across broad theoretical scope
II. Index Validation and Calibration	Test whether provisional GAI can be empirically operationalised with reliability and validity	Expert Delphi; pilot scoring; exploratory and/or confirmatory factor analysis where sample size and data structure permit; convergent validity; sensitivity analysis	Validated GAI methodology; initial scores for pilot institutions	Securing adequate data for anticipatory and learning capacity indicators
III. Institutional and Country Case Studies	Examine adaptive capacity across institutions and national systems; relate capacity to outcomes	Most-different and most-similar systems design; domain comparison; process tracing	Case-study reports; comparative analysis of determinants and outcomes	Securing access to institutional decision-making processes
IV. Policy Applications	Translate findings into actionable policy recommendations for Pact implementation review	Policy briefs; institutional diagnostics; practitioner dialogue; timed engagement	Policy briefs; diagnostic reports; engagement with Pact review	Translating scholarship into policy without collapsing into advocacy

Authors' analysis. Phase I is complete with this article. Phases II–IV are planned. The programme is cumulative and iterative, with feedback loops among phases.

16. Conclusion

The Pact for the Future has given the international community a major governance reform mandate. Chapter V's twenty actions, if implemented, would reshape the Security Council, revitalise the General Assembly, redesign the international financial architecture and strengthen the multilateral system across multiple domains. Yet the Pact's ultimate significance will depend not on the ambition of its commitments but on the adaptiveness of the institutions tasked with implementing them. A Pact adopted in 2024 that is implemented through institutions designed in 1945 is unlikely to deliver the transformed global governance its signatories have promised.

This article has argued that governance adaptiveness constitutes a distinct analytical construct, differentiated from effectiveness, resilience, representation, reform and adaptive management through explicit conceptual boundaries. It has synthesised complex adaptive systems theory, adaptive governance scholarship, global

governance theory, polycentric and network governance, and institutional learning into a unified four-capacity framework — anticipatory, responsive, inclusive and learning. It has introduced the Governance Adaptiveness Index as a provisional composite measurement architecture, with transparent treatment of indicator selection, normalisation, scoring, weighting and aggregation. It has illustrated the framework's diagnostic utility through a preliminary mapping of the Multilateralism Index 2024 onto the four capacities, revealing a participation–performance paradox in which participation has remained robust while performance has declined.

The article has addressed eight categories of counterargument and limitation, identified five normative trade-offs between adaptiveness and competing normative commitments, analysed six failure modes of governance adaptation, and developed policy implications organised by adaptive capacity. It has presented a four-phase research programme architecture extending from this foundational theory paper through index validation, case studies and policy applications. The article has not claimed that the GAI has been empirically validated; it has presented a conceptual and provisional methodological foundation for subsequent validation, calibration and application.

Three implications follow. First, the analytical priority given to governance adaptiveness in this article does not displace established concerns with representation, legitimacy, effectiveness and reform; it complements them by directing attention to a class of institutional capacities that those concerns do not adequately capture. Second, the GAI's value depends on the rigour of its subsequent validation. The framework presented here is a foundation, not a finished instrument; its credibility will be tested through the Delphi processes, pilot scoring, sensitivity analyses and case studies of Phases II and III. Third, the political economy of governance adaptation cannot be wished away. Measurement does not itself overcome political resistance, but it can clarify what is at stake, identify specific deficits that require attention, and provide analytical resources for the political work of reform.

The Pact for the Future has set the agenda. The hard work of measuring, understanding and strengthening the adaptive capacity of the multilateral system begins now. The Adaptive Global Governance research programme is designed to contribute to that work through cumulative, transparent and methodologically rigorous scholarship that links theory, measurement, case evidence and policy. The subsequent phases of the programme will progressively refine and apply the framework introduced in this foundational paper, building toward a body of research that gives the Adaptive Global Governance programme a coherent and influential presence in global governance discourse.

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