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“Lead Today to Shape Tomorrow”

SYSTEMS THINKING FOR PUBLIC SECTOR TRANSFORMATION -



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Presentation Outline



- Introduction
- Systems Thinking Explained
- Previous Reform Initiatives
- Rationale for Systems Thinking
- Statement of the Problem
- Origin of Systems Thinking
- Why public sector problems demand systems thinking
- Limitations of imported reform models
- Frameworks and Tools for Systems Thinking
- Barriers to institutionalizing Systems Thinking
- Conclusion

INTRODUCTION



- For much of the twentieth century, public administration in Africa was organized around a bureaucratic ideal inherited largely from colonial administration characterized by:
 - ❖ Hierarchical Departments ,
 - ❖ Standardized Procedures, and
 - ❖ Lines of Accountability running upward rather than outward to citizens.

- From the 1980s, Structural Adjustment Programs (SAPs) and, subsequently, New Public Management (NPM) reforms sought to remake this model by importing private-sector techniques such as **performance targets, decentralization, executive agencies, and privatization** in the hope of making African states more efficient (Hope, 2001).
- Both the bureaucratic model and the NPM model that followed it share an assumption that **complex public problems can be decomposed into manageable parts, assigned to a responsible unit, and solved through better management of that unit in isolation.**

- That assumption has proved especially costly in African contexts. For instance:
 - a. **A housing shortage** cannot be solved by a housing department alone; it is entangled with land tenure systems, municipal finance, informal settlement dynamics, and rural-urban migration.
 - b. **A public health emergency** cannot be managed by a ministry of health alone; it moves through transport corridors, informal markets, water and sanitation infrastructure, and community trust in institutions.

- African governments continue to face persistent challenges in delivering efficient, transparent, and inclusive public services precisely because of
 - ❖ institutional constraints,
 - ❖ rapid population growth, and
 - ❖ fragmented administrative systems that no single-agency intervention can resolve (Mhlanga, 2026).

- **Systems thinking offers a different starting point. Rather than treating government as a set of independent parts, it treats government and the society it serves as an interconnected whole, in which structure not individual failure generates the patterns of behaviour observed over time (Meadows, 2008; Senge, 1990).**
- In this presentation we seek to answer how systems thinking contributes to public sector transformation in Africa specifically, how it has been operationalized in African and comparative government practice, and what barriers stand in the way of moving it from an occasional donor-funded diagnostic exercise to an institutionalized way of governing.

What is Systems Thinking?



- This is the ability to see the relationship of the part to the whole, to know how one's actions affect others, grasp the “big picture”, & encourages teamwork.
- It is a **problem-solving approach that looks at a situation as a whole interconnected network rather than as isolated parts.**
- Instead of asking “**what is broken here?**”, systems thinking asks “**How do all pieces and relationships influence each other over time?**”.

REFLECTION ON PREVIOUS REFORM INITIATIVES BY GOVERNMENTS



Public administration on the African continent has passed through several overlapping reform eras.

- The colonial and early post-independence period left behind **centralized, rule-bound bureaucracies designed primarily for control and revenue collection** rather than citizen service (Hope, 2001).
- From the 1980s, structural adjustment programmes imposed by international financial institutions pressed African governments **toward retrenchment, privatization, and market-oriented restructuring.**

- This was followed, from the 1990s onward, by an explicit wave of **NPM-inspired reform that included executive agencies, decentralization to sub-national government, performance contracting, and public-private partnerships** adopted across countries such as Ghana, Nigeria, Tanzania, and Uganda, often at the encouragement of external donors (Hope, 2001).
- More recently, African governments have entered a **digital governance era**.
- Rwanda has built a national digital-government platform, **Irembo**, that consolidates public services online,

- Kenya's digital identification and mobile-payment ecosystem underpins a broader push towards data-driven administration;
- South Africa and Ghana have similarly expanded e-government systems to widen access and improve administrative transparency (Mhlanga, 2026).

- At the continental level, the African Union's Agenda 2063 names **“capable institutions and transformative leadership”** as one of its explicit goals, calling for competent, professional, merit-based public institutions able to design, implement, and monitor development programmes across all levels of government (African Union Commission, 2015).
- Recent systematic reviews frame this ongoing wave of e-governance, artificial-intelligence-enabled administration, and interoperable service platforms as **a form of institutional innovation in its own right, with outcomes that depend heavily on governance arrangements and coordination capacity** rather than on technology alone (Egba et al., 2026).

- It is against this layered background of bureaucratic inheritance, structural adjustments, NPM, decentralization, and now digital transformation that we examine **what systems thinking can offer African public sector reform.**

RATIONALE FOR SYSTEMS THINKING



- **First**, successive reform waves in Africa have largely treated public sector problems as technical and modular fixable through a new agency, a new target regime, or a new digital platform rather than as **embedded in complex social, political, and economic systems**.
- Evaluations of NPM-style reform across African countries have consistently found mixed and often disappointing results, with capacity constraints, weak ownership, and externally imposed conditionalities limiting implementation (Hope, 2001).

- A systems lens, which treats **institutional behaviour as the product of structure, feedback, and interdependence rather than of any single unit's performance**, offers African policymakers a different and potentially more explanatory starting point than the modular reform logic that has dominated for four decades.

- **Second**, the continent's current wave of digital-government investment carries its own systemic risk: **e-government platforms, AI-enabled administrative tools, and interoperable service systems** can just as easily reproduce fragmentation in digital form like disconnected databases, siloed ministries each running their own system as they can **resolve it**, unless they are designed with explicit attention to how information flows and feedback operates across the whole of government (Egba et al., 2026; Mhlanga, 2026).
- Systems thinking provides the conceptual tools needed to ask whether a given digital reform is addressing symptoms or restructuring the underlying system.

- **Third**, African institutions themselves are increasingly calling for governance approaches that are, in the words of one recent continental governance conference, **“homegrown, evidence-based, and rooted in our communities”** rather than imported wholesale from elsewhere (Global African Network, cited discussion of the “Rethinking Governance for Africa's Transformation” conference).
- Systems thinking, because it begins by mapping the actual structure and feedback of a given context rather than prescribing a universal template, is well suited to this ambition: it does not tell African governments what their institutions should look like, but gives them a method for understanding why their institutions currently behave as they do.

STATEMENT OF THE PROBLEM



- Despite decades of investment in public sector reforms such as structural adjustment programs, NPM-style decentralization and agencification, and, most recently, digital government service delivery outcomes across much of Africa remain uneven, and coordination failures between agencies, tiers of government, and donor-funded programmes persist (Hope, 2001; Mhlanga, 2026).

- Reform paradigms have tended to be adopted in sequence, each responding to the perceived failures of the last, but each largely retaining the same underlying assumption that public problems can be resolved by re-arranging organizational units, adjusting incentives, or introducing new technology, rather than by understanding and redesigning the systemic structures including feedback loops, information flows, and institutional rules that produce poor outcomes in the first place.

- At the same time, there is limited systematic scholarship examining how systems thinking, as a distinct body of theory and practice, can be applied to African public sector transformation, as opposed to the wider and better-documented literature on NPM, decentralization, and digital governance in Africa.
- We are in this presentation addressing that gap: **how can systems thinking inform and improve public sector transformation efforts in African countries, and what institutional, cultural, political, and capacity-related barriers must be addressed** for systemic approaches to take hold in African public administration?

ORIGINS AND CORE CONCEPTS OF OF SYSTEMS THINKING



- Systems thinking is an interdisciplinary tradition that emerged over the past seventy-five years from general systems theory, cybernetics, and dynamic systems theory. It has since been adapted for organizational and policy analysis (OECD, n.d.-a).
- At its core, systems thinking is a shift away from linear cause-and-effect reasoning toward attention to interconnection: **how the parts of a system relate to one another, how the system evolves over time, and what outcomes emerge from its structure rather than from any single actor's intentions** (OECD, n.d.-a).

- Where traditional public management asks **“which unit is responsible for this outcome,”** systems thinking asks **“what structure of relationships, incentives, and feedback is producing this outcome, and where within that structure can we intervene.”**
- This reframing matters in African administrative systems, where formal organograms often coexist with informal networks of authority, patronage, and community obligation that shape how policy is actually implemented, regardless of what the official structure prescribes.

- Peter Senge's (1990) *The Fifth Discipline* situates systems thinking as the discipline that integrates four others: personal mastery, mental models, shared vision, and team learning within what he termed the learning organization.
- Senge's framework has been explicitly adapted to African public administration: in a qualitative study of ten South African municipalities.

- Shava and Muringa (2024) apply Senge's model to local government, arguing that bureaucratic inefficiencies are not merely the result of flawed processes but of an organizational culture that does not prioritize learning and adaptation, and that continuous-learning platforms can help municipal officials address administrative inefficiency and resistance to innovation.

Stocks, Feedback Loops and Leverage Points



- Donella Meadows (2008) formalized much of this thinking in the vocabulary of stocks, flows, and feedback loops:
 - **Stocks are accumulations** (a hospital's patient backlog, a municipality's infrastructure-maintenance backlog, a population's level of trust in institutions); flows increase or decrease those stocks; and
 - **feedback loops** are the information channels that allow a system to adjust its own behaviour, either amplifying change (reinforcing loops) or resisting it (balancing loops).
 - In her widely cited essay *S: Places to Intervene in a System*,

- Meadows (1999) ranked twelve types of intervention points, from low-leverage adjustments such as numerical parameters (subsidies, fees, eligibility thresholds) through the structure of information flows, the rules of the system, and, at the highest level, the goals, paradigms, and mindsets out of which the system arises.
- Her central and often-repeated caution is that public institutions gravitate toward the lowest-leverage interventions that include tweaking a number, launching a new programme, adjusting a target precisely because these are the easiest to enact, even though they rarely change the behaviour the system produces (Meadows, 1999).

- This pattern is visible across African reform history, where successive administrations have repeatedly adjusted budgets, restructured ministries, or renamed agencies without altering the underlying incentive structures and information flows that shape everyday service delivery.
- Building on Meadows, Abson et al. (2017) regrouped the twelve leverage points into four broader categories that entailed parameters, feedbacks, design, and intent arguing that governance interventions cluster overwhelmingly at the shallow, parameter end of the hierarchy, while the deeper leverage available in redesigning institutions and re-examining underlying goals remains underused.

WHY PUBLIC SECTOR PROBLEMS DEMAND SYSTEMS THINKING



1. Wicked Problems

- In their landmark 1973 article, urban planners Horst Rittel and Melvin Webber distinguished the “tame” problems that classical planning and engineering methods were designed to solve from the “wicked” problems that characterize social policy. **It is always messy, complex, no single solution, keeps coming back.**
- Wicked problems, in Rittel and Webber's (1973) formulation, have no definitive formulation because how a problem is framed already presupposes a particular solution; they have no stopping rule, so that work on them ends only when resources or patience run out rather than when the problem is objectively solved;

- their proposed solutions cannot be judged true or false, only better or worse from a given point of view; and every intervention is essentially a one-shot operation with irreversible consequences, since there is no opportunity to learn safely through repeated trial and error at societal scale.
- This framing captures much of the difficulty facing African public administration. Youth unemployment, urban informality, climate-vulnerable agriculture, and cross-border displacement are not problems any single ministry can define or solve on its own terms; they are contested, interdependent, and reshaped by the very interventions meant to address them.

- Rittel and Webber's insight that there is no single, undisputed definition of the public good against which a solution can be measured reframes the task of public management away from finding the correct technical answer and toward designing processes capable of handling ongoing disagreement, learning, and adaptation across ministries, levels of government, traditional authorities, and development partners precisely the capabilities that systems thinking is intended to build.

2. The Limits of Imported Reform Models



- New Public Management reforms exported to Africa from the 1980s and 1990s sought to improve government performance by **devolving authority to autonomous, single-purpose agencies, introducing performance contracts, and exposing public services to market-like competition.**
- Hope (2001) documents this transfer of NPM techniques into African public management and finds genuinely mixed results: while some reforms improved specific operational indicators, implementation was frequently **undermined by weak civil service capacity, inadequate institutional frameworks, and reform agenda that were donor-driven rather than locally owned.**

- Performance measurement regimes built around narrow, agency-specific targets can also generate **what systems thinkers describe as “suboptimization”**: each part of the system meets its target while the system as a whole fails the citizens it serves (Seddon, 2008) a dynamic visible,
- For example, where decentralization reforms shifted formal authority to sub-national government without a corresponding shift in fiscal resources, technical capacity, or coordinating feedback from the centre.

3. Towards Whole-of-Government and Capable Institutions



- Partly in reaction to the **fragmentation produced by NPM-style reform**, many governments in Africa as elsewhere have sought **“whole-of-government” or “joined-up government” mechanisms intended to restore cross-boundary coordination** (Christensen & Lægreid, 2007).
- A systematic literature review by Aoki (2024) traces how these terms describe efforts to counter the loss of political control over fragmented administrative structures, and how scholars increasingly link the need for cross-boundary work to the wicked, interdependent nature of contemporary policy challenges such as healthcare access and crisis management.

- At the continental level, this same logic underlies the African Union's Agenda 2063 goal of **“capable institutions and transformative leadership,”** which explicitly calls for competent, professional, and merit-based public institutions able to design, implement, and monitor development programmes coherently across levels of government, rather than as a collection of disconnected agencies (African Union Commission, 2015).
- As Christensen and Lægreid (2007) note, however, coordinating mechanisms alone do not guarantee systemic understanding; agencies can be structurally joined up while still reasoning about problems in fragmented, linear terms.

The African Public Sector Reform Trajectory and the Limits of Imported Models



- The history of public sector reform in Africa can be read as a sequence of attempts to solve systemic problems with non-systemic tools.
- Structural adjustment programmes of the 1980s treated bloated, inefficient bureaucracies as a fiscal and organizational problem to be solved through retrenchment and privatization, largely bypassing the question of how state institutions related to the informal economies, traditional authorities, and donor relationships that shaped their actual functioning.
- NPM reforms that followed treated fragmentation and poor performance as a management problem to be solved through executive agencies, performance contracts, and decentralization; Hope (2001) shows that the results were uneven across countries and sectors, with capacity constraints and externally imposed conditionality frequently blunting the intended effects.

- Two structural features of this trajectory are worth highlighting through a systems lens.
- **First**, each reform wave tended to intervene at relatively low leverage points — adjusting budgets, restructuring org charts, introducing new performance parameters without addressing the deeper information flows, rules, and power structures that Meadows (1999) identifies as higher-leverage points for systemic change.

- **Second**, because many reforms were designed externally and adopted under conditionalities, the goals driving the reformed system were often defined by donor agenda rather than by a shared, locally generated understanding of the problem such as the highest-leverage intervention point in Meadows' hierarchy, and the one most likely to be resisted or hollowed out in implementation.
- This helps explain a pattern documented across the literature: technically sound reforms that nonetheless fail to change the everyday behaviour of the administrative system they were meant to transform.

- The current wave of digital governance reform risks repeating this pattern in a new form unless it is approached systemically. Egba et al. (2026), in a PRISMA-guided systematic review of digital governance across Africa, finds that e-governance systems, digital public infrastructure, and AI-enabled administrative tools are being adopted across the continent as mechanisms for strengthening public administration and accountability, but that governance arrangements, institutional capacity, and coordination systems not the technology itself are what ultimately shape whether digital transformation improves outcomes or simply digitizes existing fragmentation.

- This is consistent with the broader systems-thinking argument that information flow is a meaningful but mid-level leverage point (Meadows, 1999): digitizing a fragmented system without redesigning the rules and feedback that produced the fragmentation is unlikely, on its own, to produce a coherent one.

FRAMEWORKS AND TOOLS FOR SYSTEMS-INFORMED TRANSFORMATION



1. Systems Thinking in the Public Sector: Seddon's Critique

- John Seddon's (2008) Systems Thinking in the Public Sector offers one of the most influential practitioner critiques of target-driven public management.
- Seddon argues that command-and-control regimes built around top-down targets and inspection cause public service organizations to manage to the measure rather than to the purpose experienced by the citizen, and that redesigning services around the actual flow of citizen demand rather than around functional silos — can simultaneously improve quality and reduce cost – FOCUS ON RECIPIENT OF A PUBLIC SERVICE

2. The OECD Systems Approaches Framework



- The OECD's Observatory of Public Sector Innovation (OPSI) has developed one of the more comprehensive public-sector-specific frameworks for systems change.
- Its report *Systems Approaches to Public Sector Challenges: Working with Change* (OECD, 2017) argues that designers and reformers should ask
 - what is already working within a system and should be preserved,
 - what rigidities and frictions resist change but nonetheless serve a legitimate public interest, and
 - whether reform can proceed from within the existing system or requires pressure from outside it sometimes catalyzed by crisis.
- This diagnostic sequence is directly transferable to African reform contexts, where imported models have often failed precisely because they did not first ask what informal or traditional structures were already doing useful systemic work before being swept aside.

3. Digital Governance as Institutional Innovation



- Egba et al. (2026) propose a framework in which digital governance is understood not merely as a technology deployment but as a form of institutional innovation, whose outcomes depend on the interaction of governance arrangements, institutional capacity, and coordination mechanisms.
- This reframing brings African digital-government initiatives explicitly within a systems-thinking frame: interoperable service platforms, open data initiatives, and AI-enabled administrative systems are treated as changes to the information-flow and rule structure of government mid- to high-leverage points in Meadows' (1999) hierarchy rather than as simple efficiency upgrades.

4. Capability-Building and Continental Institutions



- Recognizing that systems thinking is a skill rather than a one-off report, multilateral institutions active on the continent have begun building structured training around it.
- The United Nations Department of Economic and Social Affairs, through its Division for Public Institutions and Digital Government, has supported African member states in building capacities in systems thinking, strategic foresight, innovation, and digital government transformation as part of a broader programme to strengthen governance systems and public institutions

- (United Nations Department of Economic and Social Affairs, 2025), and offers a dedicated course, Systems Thinking for Public Sector Transformation, that teaches participants to map the interconnectedness of the Sustainable Development Goals and apply causal loop diagrams to national development planning (United Nations Department of Economic and Social Affairs, n.d.).
- Programmes of this kind reflect a growing recognition that systemic literacy needs to be built into the ordinary training of African civil servants and planners rather than treated as an occasional consultancy input.

Barriers to Institutionalizing Systems Thinking in African Public Administration



- Despite growing interest, systems thinking remains difficult to institutionalize as an everyday practice of government rather than an occasional donor-supported diagnostic exercise, in Africa as elsewhere.
- Drawing on interviews with civil servants and systems-thinking experts, Tõnurist et al. (2020) found that systems thinking inside government is generally used as a “sense-making” exercise, often facilitated by outside experts, rather than as a routine part of day-to-day decision-making, and that there is little institutional clarity about who is responsible for promoting systemic approaches or building the capacity to sustain them.
- Individual policymakers may think systemically, but this does not automatically translate into systemic policies, because institutions not individuals ultimately determine whether systemic insight is acted upon (Tõnurist et al., 2020).

Conclusion



- Systems thinking offers African public administration a more realistic account of why four decades of well-intentioned reform structural adjustment, New Public Management, decentralization, and now digital governance have so often failed to change the patterns of behaviour they targeted: because those patterns are generated by structure like feedback loops, information flows, incentives, and mental models, both formal and informal rather than by the isolated performance of any single agency, programme, or platform (Meadows, 2008; Senge, 1990).
- The wicked-problems tradition explains why so much of contemporary African public policy resists the tame, linear methods that imported administrative models assumed (Rittel & Webber, 1973), and the continent's own reform history documents the real institutional cost of repeatedly intervening at low-leverage points such as new agencies, new targets, new platforms without addressing the deeper rules and goals that shape how those interventions are actually absorbed (Hope, 2001).

References



- Abson, D. J., Fischer, J., Leventon, J., Newig, J., Schomerus, T., Vilsmaier, U., von Wehrden, H., Abernethy, P., Ives, C. D., Jager, N. W., & Lang, D. J. (2017). Leverage points for sustainability transformation. *Ambio*, 46(1), 30–39.
- African Union Commission. (2015). *Agenda 2063: The Africa we want* (Popular version). African Union Commission.
- Aoki, N. (2024). Whole-of-government and joined-up government: A systematic literature review. *Public Administration*. Advance online publication. <https://onlinelibrary.wiley.com/doi/10.1111/padm.12949>
- Christensen, T., & Lægreid, P. (2007). The whole-of-government approach to public sector reform. *Public Administration Review*, 67(6), 1059–1066. <https://doi.org/10.1111/j.1540-6210.2007.00797.x>
- Egba, V. N., Ayanwale, M. A., Ukeje, I. O., Durokifa, A., Chioke, S. C., Obi, Y. M. V., & Ereke, K. I. (2026). Digital governance as institutional innovation for sustainable public-sector transformation in Africa: A PRISMA-guided systematic literature review and framework for inclusive and decentralized governance. *Sustainability*, 18(17), Article 8929. <https://doi.org/10.3390/su18178929>

- Gadsby, E. W., & Wilding, H. (2024). Systems thinking in, and for, public health: A call for a broader path. *Health Promotion International*, 39(4). <https://doi.org/10.1093/heapro/daae086>
- Haynes, A., Rychetnik, L., Finegood, D., Irving, M., Freebairn, L., & Hawe, P. (2020). Applying systems thinking to knowledge mobilisation in public health. *Health Research Policy and Systems*, 18, Article 134. <https://doi.org/10.1186/s12961-020-00600-1>
- Hope, K. R., Sr. (2001). The new public management: Context and practice in Africa. *International Public Management Journal*, 4(2), 119–134.
- Jaaron, A. A. M., & Backhouse, C. J. (2010). Systems thinking for public services: Adopting manufacturing management principles. In A. K. Zokaei, J. Seddon, & B. Hines (Eds.), *Systems thinking: From heresy to practice?* Palgrave Macmillan.
- Meadows, D. H. (1999). *Leverage points: Places to intervene in a system*. The Sustainability Institute.
- Meadows, D. H. (2008). *Thinking in systems: A primer* (D. Wright, Ed.). Chelsea Green Publishing.

- Mhlanga, D. (2026). Using artificial intelligence to improve governance and public services in Africa. *Frontiers in Big Data*. <https://doi.org/10.3389/fdata.2026.1835663>
- Organisation for Economic Co-operation and Development. (2017). *Systems approaches to public sector challenges: Working with change*. OECD Publishing.
- Organisation for Economic Co-operation and Development. (n.d.-a). *Systems change*. Observatory of Public Sector Innovation. Retrieved August 31, 2026, from <https://oecd-opsi.org/guide/systems-change/>
- Pidgeon, C. (2010). *Systems thinking and public sector efficiencies* (Research Paper 050/10). Northern Ireland Assembly, Research and Library Service.
- Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4(2), 155–169. <https://doi.org/10.1007/BF01405730>
- SAP & Oxford Economics. (2020). *The public sector transformation imperative: Serving citizens through connections, transparency and purpose-led leadership*. SAP.
- Seddon, J. (2008). *Systems thinking in the public sector: The failure of the reform regime... and a manifesto for a better way*. Triarchy Press.
- Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*. Doubleday/Currency.

- Shava, E., & Muringa, T. P. (2024). Curbing bureaucratic limitations through continuous learning in local government in South Africa. *Frontiers in Political Science*, 6, Article 1435414. <https://doi.org/10.3389/fpos.2024.1435414>
- Systems Thinking Alliance. (2025). Leverage points in system transformation: Insights & critiques. <https://systemsthinkingalliance.org/transforming-systems-with-leverage-points-insights-and-critiques-and-future-directions/>
- Tönurist, P., Rovenskaya, E., Mechler, R., Dieckmann, U., & Wagner, F. (2020). Introducing systems thinking into public sector institutions: Learning by doing? In OECD & International Institute for Applied Systems Analysis, *Systemic thinking for policy making: The potential of systems analysis for addressing global policy challenges in the 21st century*. OECD Publishing. https://www.oecd-ilibrary.org/governance/systemic-thinking-for-policy-making_3a9acaa6-en
- United Nations Department of Economic and Social Affairs. (2025). *DESA highlights report 2025: Strengthening governance systems and public institutions (Chapter 5)*. United Nations.
- United Nations Department of Economic and Social Affairs, Division for Public Institutions and Digital Government. (n.d.). *Systems thinking for public sector transformation [Online course]*. Retrieved August 31,

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