



A SYSTEMATIC REVIEW OF LITERATURE ON ASSESSING THE IMPACT OF OPEN DATA INITIATIVES ON DECISION MAKING IN UGANDA: A CRITICAL REVIEW OF POLICY, GOVERNANCE, AND EVIDENCE

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ABSTRACT

This paper critically reviews literature on open data initiatives in Uganda to assess their influence on governance and policy decision-making, identify challenges, and propose future research directions. A critical integrative review was conducted using Google Scholar, Scopus, and Ugandan governmental/NGO portals (2010–2025). Empirical and policy-analysis studies on open data, statistical portals, or data governance in Uganda were included. Thematic synthesis was applied. Findings show that open data initiatives such as the Open Data Readiness Assessment, UBOS portals, and sectoral data releases have produced incremental gains in evidence availability and transparency. However, impact on actual decision-making remains uneven due to weak institutional capacity, low data literacy, data quality gaps, infrastructure limits, and weak legal enforcement. Policy frameworks (e.g., draft Open Data Policy, EITI policy) are developing but lack mandates and standardization. Most studies are qualitative or case-based; longitudinal and outcome-based impact evaluations are absent. The paper consolidates fragmented evidence and offers policy recommendations. Future research should use mixed-methods and quasi-experimental designs. Policymakers should strengthen legal mandates, infrastructure, data timeliness, and stakeholder engagement. Improved open data implementation could enhance transparency, public trust, citizen participation, and SDG outcomes.

KEYWORDS: Open Data; Uganda; Decision-Making; Governance; Policy; Data Utilization

1. INTRODUCTION

Open data, typically defined as government or public sector data that is freely available for anyone to access, use, reuse, and redistribute with minimum restrictions, is widely viewed as a cornerstone of evidence-informed policy, transparency, accountability, and citizen empowerment. Open Government Data (OGD) Initiatives in Uganda represent a fundamental shift in the way government interact with their citizens. These initiatives are driven by the recognition that transparency, accountability, and citizen participation are essential pillars of effective governance. By embracing the principles of open data, government of Uganda seeks to establish a more transparent and inclusive decision-making process that fosters public trust and drives socio-economic development. At the core of OGD initiatives is the idea that government data should be freely available and easily accessible to all citizens.

This data encompasses a wide range of information, including budget allocations, procurement contracts, public service delivery statistics, environmental records, and demographic data. By making this data openly available, governments aim to empower citizens with the information they need to actively engage in public discourse and participate in the governance process [1, 2]. Through the release and utilization of government data, OGD initiatives aim to enhance governance practices by promoting transparency and accountability within government institutions. By making information about government activities,

expenditures, and performance readily accessible to the public, these initiatives create opportunities for citizens to scrutinize government actions, identify areas of inefficiency or malpractice, and demand accountability from elected representatives and public officials. OGD initiatives play a critical role in fostering public trust in government institutions. By providing citizens with access to detailed.

In Uganda, open data initiatives have gained government attention in recent years, spurred by global norms and domestic demands for transparent governance. Several government bodies have launched data portals, readiness assessments, and open data draft policies. Despite progress, there is limited understanding of how open data initiatives affect decision-making processes at national and subnational levels. This study aims to fill this gap through a critical literature review.

2. THEORETICAL AND CONCEPTUAL FRAMEWORK

This review applies three interlocking frameworks: (a) Open Government Data's Antecedents–Decisions–Outcomes model (Wirtz et al., 2022) to trace causal pathways; (b) Information Governance dimensions (Henriksson et al., 2019) to assess data stewardship, quality, and infrastructure; and (c) Evidence-informed Policy Making (Suazo et al., 2025) to examine how data translates into policy. Uganda's Open Data Readiness Assessment (World Bank, 2014) provides baseline conditions.



These frameworks together guide thematic analysis of enablers and barriers to data use in decision-making.

1. Open Government Data (OGD) theory core concepts and causal pathways

OGD theory is an interdisciplinary body of work (public administration, information systems, political science) that seeks to explain when and how releasing government datasets publicly produces social, administrative, or economic benefits. Two complementary strands matter for impact assessment:

a). Transparency-accountability pathway. OGD reduces information asymmetries, enabling journalists, civil society, and oversight bodies to detect corruption, misallocation, or underperformance and thereby exert pressure for corrective action. Empirical studies and case collections highlight transparency and anti-corruption as common outcome claims of OGD (Wirtz et al., 2022).

b). Decision-support and innovation pathway. By providing machine-readable data for analysis and service design, OGD enables better targeting of programmes, evidence-driven service improvements, and private-sector innovation that can inform government choices (e.g., using transport, health or budget data). Conceptually, this requires not just data release but interoperability, quality, and analytical capacity among users (Shao et al., (2023).

Wirtz (2022) proposes an Antecedents Decisions Outcomes (ADO) perspective that helps structure evaluation: antecedents (political leadership, legal regime, technical infrastructure) affect OGD inputs (data publication practices), which influence decisions (policy formulation, resource allocation) and, ultimately, outcomes (service quality, accountability). Using ADO helps the evaluator trace plausible causal chains rather than assuming data release directly changes outcomes (Wirtz et al., 2022)

2. Information governance and data-governance frameworks: organising the supply side

Effective assessment requires mapping how government handles data before release. Information governance (IG) and data-governance frameworks define roles, processes, standards and assurance practices that make data usable and trustworthy.

Core components across frameworks include: governance structure and stewardship (who decides what is published), policies and legal rules (privacy, licensing), data quality and metadata standards, technical infrastructure (APIs, portals), access/security controls, and incentives for compliance and reuse (training, mandates). These have been distilled in multiple practitioner and academic frameworks (health IG scoping reviews, data governance maturity models, and practitioner guides) (Smith, 2025).

Why governance matters for impact. Without robust IG, open datasets are likely to be incomplete, inconsistent, or non-machine-

readable barriers that prevent use by analysts and civil society. Thus, assessing impact requires indicators of governance maturity (existence of policy, data stewardship roles, metadata standards, quality control, interoperability). Frameworks such as data governance maturity models and domain-specific IG (e.g., health information governance) provide measurable dimensions for assessment (Wirtz, et al. 2022).

Illustrative context: Uganda's readiness and developments

Uganda completed an Open Data Readiness Assessment (ODRA) that found the country had foundational assets (some leadership, data assets) but also key gaps in policy, capacity and civic demand conditions that shape whether open data can affect decisions (World Bank ODRA, 2015). More recent efforts national data exchange initiatives (UGhub) and sector initiatives signal movement toward integrating data flows, but governance, interoperability and translation mechanisms remain central constraints. Assessments in other contexts show that when intermediaries and institutional routines exist (dashboards adopted inside ministries, capacity for analysis), open data has stronger impact on decisions; absent these, datasets are underused. (Bernardo, 2024). This paper critically reviews literature on open data initiatives in Uganda to assess their influence on governance and policy decision-making, identify challenges, and propose future research directions.

3. METHODOLOGY

The search yielded 312 records after duplicate removal. After title/abstract screening, 78 full-text works were assessed. Inclusion criteria: empirical or policy-analysis studies on open data, statistical portals, or data governance in Uganda, published 2010–2025 in English. Exclusion: purely technical works without decision-making relevance; non-Uganda contexts unless explicitly comparative. A total of 42 studies met inclusion criteria (24 peer-reviewed articles, 12 grey literature reports, 6 government policy documents). Quality was assessed using the Critical Appraisal Skills Programme (CASP) checklist for qualitative studies and the AACODS (Authority, Accuracy, Coverage, Objectivity, Date, Significance) tool for grey literature. No studies were excluded solely on quality grounds, but limitations (e.g., lack of methodological detail) were noted in synthesis.

4. REVIEW OF LITERATURE & DISCUSSION

Uganda's engagement with open data has been gradual. Early national ICT strategies recognized the role of data and information flows in development, and international assessments encouraged the creation of an open-data portal and related infrastructure. The open-data agenda gained momentum through government statistical modernization (led by the Uganda Bureau of Statistics UBOS), donor-supported readiness assessments, and sectoral reforms at agencies such as the National Information Technology Authority–Uganda (NITA-U). These efforts culminated in multiple portals and policy drafts and in sector-level open-data initiatives (for example, by UBOS and the



Extractive Industries Transparency Initiative in Uganda) (Open Data Assessment, 2015)

Core legal instruments affecting open data

Access to Information Act (2005)

The constitutional right to access information (Article 41) is operationalized in Uganda's Access to Information Act, 2005. The Act establishes a legal right to request records held by public bodies, prescribes procedures for requests, and requires certain classes of information to be proactively disclosed. The Access to Information Act provides a direct legal foundation for open-data principles (such as proactive disclosure and citizen access), although it was enacted before the rise of the modern open-data movement and therefore does not by itself address many technical and interoperability issues associated with open-data implementation (The Access to Information Act, 2005)

Data Protection and Privacy Act (2019)

Open-data efforts must navigate privacy and data-protection requirements. Uganda's Data Protection and Privacy Act (2019) create obligations on data controllers and processors to protect personal data, establishes principles (lawfulness, purpose limitation, data minimization), and provides rights to data subjects. The Act is essential for defining what government-held data can be published openly; it limits release of personally-identifying information without lawful basis and thereby requires anonymization, aggregation, or legal exemptions before publishing sensitive datasets. In practice, the Data Protection Act is a necessary complement to access laws, but it also introduces compliance complexity that agencies must manage to avoid privacy breaches (Data Protection and Privacy Act, 2019).

National ICT Policy and sector strategies

The National ICT Policy (2014) and subsequent ICT/ digital governance frameworks provide strategic direction for using ICTs including data management and open government data to drive socio-economic development. These policy instruments emphasize building infrastructure, improving government information systems, and enhancing e-governance, all of which are prerequisites for an effective open-data program. Drafts and updates to national ICT policy also seek to align data governance with security, innovation, and service-delivery objectives (National ICT policy, 2022)

Sectoral and agency-level policies

Several agencies have produced their own open-data or information-sharing policies (for example, UBOS's open-data initiatives and the UGEITI open-data policy for extractive-sector information). These documents operationalize open-data principles within specific institutional contexts, clarifying what datasets will be published, frequency, and format. While useful, a patchwork of agency-level policies can lead to inconsistent standards unless harmonized by a central framework (UGEITI Open Data Policy, 2024)

Open-data platforms and practice

Uganda hosts several open-data resources: the national/sectoral data portals (including UBOS portals and SDG/Open Data portals), and an earlier national open-data portal supported by development partners. These platforms make statistical series, spatial datasets, and thematic indicators available for download and visualization. International assessments (World Bank Open Data Readiness Assessment; Open Data Inventory) have evaluated Uganda's readiness and coverage, noted progress while highlighting gaps in metadata standards, machine-readable publication, and completeness across sectors. Uganda's ODIN ranking and other assessments show moderate performance, signalling both opportunity and work remaining to reach international open-data benchmarks (Uganda Open Data Inventory Profile, 2024)

5. Policy and Governance Implications

The study recommends enacting and operationalising the Open Data Policy, enforcing data standards, building capacity, enhancing portal usability, and institutionalising monitoring frameworks for open data outcomes.

Open data initiatives the proactive release of government datasets in machine-readable, reusable formats are promoted worldwide as catalysts for transparency, innovation, and evidence-based decision making. In Uganda, the government and a range of intermediaries (statistical agencies, ministries, civil society, and innovation hubs) have launched portals, policies and projects designed to make public-sector data more accessible (e.g., national data portals, UBOS dashboards, and civil-society programmes). This essay draws on the evidence and lessons from assessments and case studies of Uganda's open data ecosystem to set out the policy and governance implications of open data for decision making in the country. It synthesizes documented impacts, constraints observed in practice, and recommended governance responses to ensure open data meaningfully improves decisions at national and subnational levels. (World Bank, 2014)

Uganda's open data trajectory has combined government-led readiness work (including a World Bank Open Data Readiness Assessment recommending a centralized portal, high-value dataset releases and an inter-agency working group) with civil society-led data-use initiatives (notably CIPESA's Participate project) and the development of statistical and sectoral portals (UBOS and national SDG/sector dashboards). The ODRA recommended prioritizing health, education and budget datasets, institutional coordination (e.g., MoICT, MoFPED, UBOS), and building capacity for both supply and demand sides of data use. (World Bank, 2014))

Case evidence from Uganda shows open-data activities have had measurable, though often partial, effects: intermediaries and journalists trained to use open data have improved advocacy and public awareness (especially around health and budget oversight), and data visualizations and crowd-mapping projects have helped identify service delivery gaps for planners and citizens. However,



many projects reported limited direct changes in service delivery outcomes because of structural constraints (limited institutional responsiveness, low ICT infrastructure, and capacity gaps). These patterns mirror global findings that open data can improve transparency and enable decision-making, but that impact depends on enabling conditions and complementary governance measures (Kalemera, 2015)

How open data affects decision making observed mechanisms

From the Uganda studies, open data affects decision making through several mechanisms:

Informing problem diagnosis and priority setting. Data releases (e.g., facility locations, budgets, census indicators) enable planners, legislators and civil society to identify gaps and target interventions more precisely. For example, maps of health facilities and bed counts were used by intermediaries to highlight areas with inadequate capacity.

Enhancing oversight and accountability. Budget and expenditure datasets increase transparency and provide new material for oversight by media, parliament, and CSOs. Public scrutiny can pressure agencies to justify resource allocation or correct anomalies.

Facilitating cross-sectoral coordination and evidence sharing.

Centralized portals and common data standards make it easier for ministries and local governments to share comparable indicators for planning (e.g., for SDGs, health, and education). The ODRA recommended standardizing formats and metadata to enable such coordination. (World Bank 2014)

Enabling citizen engagement and local planning. Crowd-mapping and SMS/radio dissemination allow citizens to contribute data and use published data in community planning and advocacy, strengthening bottom-up inputs into decision processes.

However, translating these mechanisms into routine, institutionalized decision making was often hampered by limited capacity, irregular data updates, and low readiness at subnational levels. The GovLab review emphasized that open data's impact is strongest when supply and demand are matched by intermediaries, when there are clear problem definitions, and when institutions are responsive to data-derived insights.

Key policy implications

Based on the study's findings and international lessons, the following policy implications are central for Uganda:

1. Move from pilot projects to institutionalized data infrastructure and funding

Ad hoc projects produce local wins but do not guarantee sustained impact. The ODRA and global evidence argue for establishing an institutional home (inter-agency working group or lead ministry), sustained budget lines for portal maintenance, and clear mandates for dataset publication and updates. Policies should require periodic publication of high-value datasets and allocate staff/time

to stewardship tasks. Without recurrent funding and institutional ownership, data portals and dashboards risk becoming obsolete or inconsistent. (World Bank 2014)

2. Enact clear open data policy and legal guidance (licensing, privacy, standards)

Uganda must adopt clear rules for what is published, licensing that makes reuse lawful, and privacy safeguards for sensitive datasets. ODRA highlighted that guidance and standing instructions help MDAs know which datasets to open and how to format them; the GovLab analysis similarly stresses policy clarity as an enabling condition. Policies should align with Uganda's Access to Information Act, data protection instruments, and sectoral confidentiality rules to manage trade-offs between openness and privacy. (Data Protection Laws of the World, 2026)

3. Invest in capacity building across supply and demand sides

Publication alone does not create use. Ministries require technical skills (data cleaning, metadata, APIs), while civil society, media, and local government actors need training in data literacy and analysis. Intermediaries NGOs, universities, and innovation hubs are crucial for translating raw data into actionable insights for decision makers and citizens; policies should fund and partner with these intermediaries.

4. Prioritize high-value datasets tied to specific decision problems

The greatest impact arises when open data addresses a well-defined policy problem (e.g., medicine stockouts, school performance, local budget allocation). Governments should adopt a problem-driven release strategy: identify priority decisions and publish the datasets that directly inform those decisions, then measure usage and outcomes. This approach increases the likelihood that published data will be acted upon.

5. Build feedback loops and monitoring to demonstrate impact

To move from awareness to institutional change, open data programmes should include monitoring frameworks that track portal usage, case studies of policy changes, and indicators of improved decision processes. Evidence of impact helps sustain political support and funding. The ODRA recommended portal metrics and user surveys to quantify benefits; such monitoring should be codified in policy (World Bank, 2023)

Governance implications

Open data reshapes governance responsibilities and expectations. Key governance implications include:

Redistribution of informational power: Open datasets democratize information, shifting some analytic power away from closed bureaucratic silos toward CSOs, media and the public. Governments must prepare for greater public scrutiny and design responsive channels to receive and act on data-driven demands.



Inter-agency coordination becomes essential: Publishing comparable, high-quality data requires coordinated metadata standards, common identifiers, and shared responsibilities a governance function best managed through a formal inter-agency mechanism with ministerial backing.

New accountability pathways: Data transparency creates new levers for accountability but only if institutions respond. Governance reforms should clarify how data-based evidence is incorporated into planning cycles, budget reviews, and parliamentary oversight. Otherwise, data can raise expectations without producing change.

Risk management and ethics governance: As open data use grows, risks around privacy, re-identification, and misuse increase. Governance frameworks must include data protection oversight, ethical review processes for releases, and sanction/rectification mechanisms when harm occurs.

Recommendations (policy actions)

Adopt a National Open Data Policy that mandates periodic release of a minimum set of high-value datasets, licensing, and privacy safeguards; create a multi-stakeholder Open Data Working Group chaired at senior level (World Bank (2014)

Fund and operationalize a national portal with APIs, machine-readability standards and regular maintenance budgets; build portal metrics and publish an annual open data impact statement (World Bank. (2014)

Invest in capacity building grants for MDAs (data management) and intermediaries (data literacy, visualization), with specific emphasis on subnational actors and local government planners.

Implement problem-driven pilot projects (e.g., medicines supply, school performance) that link data releases to concrete decision processes and measure outcomes to build the evidence base.

Strengthen legal/ethical safeguards and a data stewardship office to review sensitive releases, manage privacy risk, and provide licensing templates.

Hence, Uganda's open data initiatives have demonstrated real potential to inform decisions, increase accountability and empower citizens particularly where intermediaries translate raw datasets into usable insights and where datasets target concrete problems (e.g., health facility gaps, budgeting). Yet the transition from pilot impacts to systemic change depends on governance reforms: a clear national policy and institutional home, sustained funding, coordination across agencies, capacity building for both supply and demand, and ethical safeguards. If these policy and governance enablers are implemented, open data can move from an aspirational resource to a routine input in Uganda's decision-

making processes improving policy targeting, service delivery and public trust. (World Bank. (2014)

6. CONCLUSION AND FUTURE RESEARCH DIRECTIONS

Uganda has made strides in open data dissemination but faces persistent governance and infrastructural barriers. Future studies should employ mixed-methods impact evaluations and sector-specific analyses to measure open data's contribution to decision quality and governance outcomes.

This study set out to evaluate how open data initiatives in Uganda influence decision making across public sector institutions, civil society, academia, and the private sector. After examining policy frameworks, data availability and quality, institutional capacities, user uptake, and practical case examples of data-driven decisions, several clear conclusions emerge.

First, open data initiatives in Uganda have created **meaningful but uneven improvements** in the information environment. The existence of legal and policy instruments, pilot portals, and a handful of sector-specific datasets (e.g., health, agriculture, public expenditure) demonstrably increased transparency and the potential for evidence-based decision making. Where tidy, timely, and well-documented datasets exist, actors especially NGOs, researchers, and some forward-looking government units have used them to diagnose problems, design interventions, monitor implementation, and advocate for policy change. These successes show that, in principle, open data can shift decision practices from intuition- or politics-driven processes toward more evidence-informed approaches.

Second, the **impact is limited by systemic constraints**. Data completeness, standardization, granularity, and timeliness remain inconsistent. Many datasets are published in formats or portals that are hard to access or reuse; crucial metadata and documentation are often absent. Capacity limitations at multiple levels data management skills within government agencies, data literacy among decision-makers, and technical capabilities among civil society actors reduce the likelihood that available data will translate into better decisions. In many cases, institutional incentives do not reward data sharing or use; instead, bureaucratic silos, political sensitivities, and concerns about reputational risk lead to selective publication or withholding of information.

Third, the **value of open data is strongly context-dependent**. In sectors where decision cycles are rapid and clearly mapped (e.g., certain aspects of public health response or local service delivery), open data has higher immediate utility. Conversely, in long-term policy domains (macroeconomic policy, land administration), open data alone is insufficient complementary investments in analysis, integration across administrative systems, and governance reforms are necessary to realize impact. Equally important, the social and political environment mediates uptake: civic actors and journalists play a key intermediary role by interpreting and communicating data; where these



intermediaries are weak or constrained, raw datasets exert little influence on public debate or policy outcomes.

Fourth, **equity and inclusion are outstanding concerns**. Although open data promises universal access, digital divides (internet access, language barriers, technical skills) mean that benefits accrue disproportionately to urban, educated, and well-resourced actors. Marginalized communities, local governments with limited ICT infrastructure, and small-scale private actors are less able to use open data for decision making. This limits the democratizing potential of open data and risks entrenching existing power imbalances.

Fifth, on a normative level, the study affirms that **open data is a necessary but not sufficient condition** for better governance. It enhances transparency and can enable accountability, but only when embedded within complementary reforms: stronger institutions for data stewardship, capacity-building programs, mandates and incentives for data sharing, user-centred tooling, and protections for privacy and data rights. When these pieces align, open data becomes a catalyst; when they do not, it remains an underutilized resource.

In sum, the study concludes that Uganda's open data initiatives have carved an important foundation and demonstrated proof-of-concept gains, but their transformative potential for decision making is currently constrained by technical, institutional, political, and social barriers. Realizing the promise of open data will require coordinated, sustained interventions that extend beyond portal development to address governance, capacity, and equity.

Future Research Directions

To move from descriptive assessment to actionable knowledge, the following focused research avenues are proposed. These directions are designed to be methodologically diverse, policy-relevant, and sensitive to Uganda's institutional and socio-political realities.

1. Impact Evaluation Studies with Counterfactual Designs

The aim is to measure causal impact of open data on specific decisions and outcomes since the existing evidence is often anecdotal or correlational. Policymakers need causal estimates to justify investments.

2. Longitudinal Studies of Data Use Trajectories

The aim is to understand how data use evolves over time within institutions and what enables sustained adoption since Short-term pilots may show initial gains that erode without institutionalization. Longitudinal work reveals diffusion mechanisms, attrition, and institutional learning. The study should conduct mixed-method panel studies tracking a cohort of agencies, local governments, or civil society organizations across multiple years; employ repeated surveys, usage analytics, interviews, and document analysis.

3. Research on Intermediaries and Translation Mechanisms

Aim: Examine the role of data intermediaries (journalists, civic tech startups, NGOs) in translating datasets into actionable

intelligence. **Why:** Intermediaries mediate between raw data and decision-makers/citizens and are crucial for impact. **Approach:** Case studies, network analysis of information flows, and comparative studies across regions to identify best practices for data synthesis, narrative framing, and engagement strategies.

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