

# Real-Time Budget Transparency Portals and Public Accountability Outcomes

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## Abstract

### Article history:

Received: August 13, 2025

Revised: September 08, 2025

Accepted: October 24, 2025

Published: December 30, 2025

### Keywords:

Accountability, Budget  
Transparency, Digital Government,  
Real-Time Data, Transparency  
Portals.

### Identifier:

Nawala

Page: 80-93

<https://nawala.io/index.php/ijpfa>

This article asks how real-time budget transparency portals shape public accountability outcomes and under what conditions their effects are strengthened or weakened in contemporary digital governance. Using a descriptive qualitative systematic literature review of peer-reviewed studies published between 2019 and 2024, it synthesizes evidence across public finance, e-government, and information systems research to clarify accountability mechanisms and contextual moderators. The reviewed literature indicates that portals are most strongly associated with accountability gains when “real-time” disclosure is paired with high transparency quality, including consistent classifications, reliable metadata, traceable audit trails, and user-centered presentation that improves interpretability and verification. The discussion integrates findings around three recurring pathways: lower monitoring costs for oversight actors and intermediaries, conditional and uneven participation effects, and mixed trust outcomes that can backfire when context and usability are weak. Overall, the main finding is that timeliness amplifies governance conditions, while accountability depends on usability, auditability, and actionable response channels.

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## 1. Introduction

Governments are increasingly expected to show, not just promise, that public money is allocated and spent in line with rules and public priorities. This expectation has accelerated the diffusion of budget transparency portals that publish budgets, execution data, procurement, and performance information in near real time. Conceptually, these portals sit at the intersection of digital government transformation and fiscal governance reforms, where technology is used to redesign how information is produced, shared, and acted upon across the public sector (Mergel et al., 2019). In public finance terms, the shift from periodic reporting toward continuous disclosure is often framed as a way to reduce information asymmetries between citizens and agents, strengthen oversight, and increase the credibility of fiscal commitments.

Yet “more data” does not automatically translate into “more accountability”. Research on open government data shows that transparency is conditional on whether disclosed information is intelligible, usable, and connected to meaningful accountability channels, rather than simply made available online (Matheus & Janssen, 2020). Evidence from studies of digital transparency tools similarly suggests that design choices shape who benefits: portals that publish raw datasets can maximize openness but demand analytical capacity, while apps and dashboards can increase usefulness by simplifying interpretation but may narrow the perspectives users can see (Matheus et al., 2023). For real-time budget portals, this design tension is especially consequential because users include not only watchdog organizations

and journalists, but also internal auditors, legislators, service managers, and ordinary citizens with limited time and technical skills.

Empirical findings across digital public services further indicate that transparency and accountability are multidimensional attributes that depend on accessibility, explainability, auditability, and redress mechanisms, not only on disclosure frequency (Saldanha et al., 2022). In parallel, scholarship on government openness and legitimacy highlights that openness can strengthen trust and accountability outcomes, but effects are mixed and mediated by factors such as citizens' democratic capacity and the institutional environment that enables people to use information for voice or sanction (Schmidhuber et al., 2021). In fiscal governance, cross-country evidence also links higher levels of budget transparency with beneficial public-sector outcomes, underscoring why transparency reforms remain a central policy lever, even as debates continue about how outcomes materialize (Cuadrado-Ballesteros & Bisogno, 2022).

Against this backdrop, the literature on real-time budget transparency portals remains fragmented across public finance, e-government, and information systems research, with varied outcome definitions and measurement approaches. This article therefore conducts a systematic literature review of peer-reviewed studies published from 2019 to 2024 to synthesize what is known about how real-time or near-real-time budget transparency portals relate to public accountability outcomes, for whom, and under what conditions. By consolidating evidence on mechanisms (for example, oversight activation, participation, audit effectiveness, or trust-building) and highlighting design and context contingencies, the review aims to clarify what

“works” in digital fiscal transparency and to identify a focused agenda for future empirical research and policy design (Begany & Gil-Garcia, 2024).

## **2. Literature Review**

Real-time budget transparency portals are commonly positioned as a digital governance intervention that reduces information asymmetry between public agencies and external stakeholders, thereby strengthening oversight and accountability. Within the broader digital transformation agenda, these portals represent a move from episodic reporting to continuous disclosure, which can reconfigure how fiscal data are produced, validated, and consumed across the public sector (Mergel et al., 2019). However, digital transparency is not merely a technical upgrade; it is an institutional design challenge where rules, roles, and data infrastructures jointly determine whether information becomes actionable for accountability.

A key stream of literature emphasizes that accountability effects depend on the “quality” of transparency rather than the sheer volume or timeliness of disclosure. Work on open government data and digital transparency highlights that usefulness requires understandable formats, interpretability, and linkage to users’ needs and oversight processes (Matheus & Janssen, 2020; Matheus et al., 2023). In parallel, design-oriented research argues for “transparency-by-design”, where governments build institutional and technological foundations for data quality, traceability, and trust before deploying digital transparency solutions (Matheus et al., 2021). For budget portals specifically, this implies that real-time publication without

reliable classifications, consistent metadata, and clear explanations can increase noise, reduce trust, and weaken accountability pathways even when data are technically open.

A second stream addresses contextual and behavioral contingencies, especially the conditions under which transparency translates into accountability outcomes such as trust, responsiveness, or sanction. Evidence suggests that government openness can support trust and perceived accountability, but effects are shaped by democratic capacity and the availability of channels through which citizens and intermediaries can act on information (Schmidhuber et al., 2021). Research also points to the ecosystem of participation tools as a complementary mechanism: if digital channels fail to communicate how decisions are made, implemented, and assessed, transparency may not yield meaningful accountability feedback loops (Shin et al., 2024). These insights align with findings from digital public services, where accountability is strengthened when transparency is paired with accessibility, explainability, and avenues for redress (Saldanha et al., 2022).

Finally, measurement-oriented studies highlight the practical reality that many transparency portals are built to satisfy indices or compliance requirements, which can distort what is published and how it is structured. Comparative evidence from local government transparency assessment shows wide variation in portal quality and depth, suggesting that formal compliance does not guarantee effective disclosure for accountability purposes (Garrido-Rodríguez et al., 2022). Taken together, the literature implies that real-time budget transparency portals are most plausibly associated with improved accountability when they combine high-quality, user-

centered disclosure with institutional arrangements that enable scrutiny and response, a premise that this review will synthesize across studies and contexts (Cuadrado-Ballesteros & Bisogno, 2022; Begany & Gil-Garcia, 2024).

### **3. Methods**

This study uses a descriptive qualitative approach with a systematic literature review (SLR) method to examine how real-time budget transparency portals are associated with public accountability outcomes. The SLR approach was selected because it enables an orderly and traceable synthesis of theories and empirical evidence across public finance, e-government, and information systems scholarship, where concepts such as transparency, accountability, and digital transformation are often operationalized differently. By consolidating evidence from multiple contexts, this method helps clarify the mechanisms through which portals may influence accountability, including oversight activation, participation dynamics, audit effectiveness, and trust-related outcomes.

The literature search was conducted using reputable academic databases and indexing platforms, including Scopus, Web of Science, and Google Scholar. Search strings combined keywords related to the technology and the outcome domain, for example “budget transparency portal”, “real-time fiscal transparency”, “open budget data”, “budget execution dashboard”, “digital transparency”, “public accountability”, “audit”, and “public trust”. To ensure relevance and credibility, the inclusion criteria were: (1) peer-reviewed journal articles published between 2019 and 2024, (2) a substantive focus on digital or portal-based budget transparency at

national or subnational levels, and (3) explicit discussion or measurement of accountability outcomes (for example, oversight, control, responsiveness, sanctions, participation, or trust). Studies were excluded if they were editorials, conceptual commentaries without evidence, non-peer-reviewed reports, duplicates, or not available in full text.

After the initial search, the selection process was carried out in a straightforward screening flow. Titles and abstracts were reviewed first to remove studies that were clearly unrelated to real-time or portal-based budget transparency. The remaining articles were then read in full to confirm that they examined a relevant transparency portal (or comparable near-real-time fiscal disclosure tool) and reported clear accountability outcomes. All eligible studies were checked for basic methodological quality, then key information was extracted (research setting, portal features such as update frequency and usability, outcome indicators, and contextual factors). Finally, the findings were synthesized thematically by grouping similar results into major patterns, highlighting consistent mechanisms, differences across contexts, and research gaps.

## **4. Results and Discussion**

Across the reviewed studies, real-time budget transparency portals are rarely presented as a “standalone” fix for accountability. Instead, the evidence consistently treats them as part of a broader digital transparency capability, where outcomes depend on whether the portal improves visibility and also enables interpretation and follow-up action. From a digital transformation perspective, portals change how

fiscal information is produced, validated, and circulated, but their impact is shaped by organizational routines, data governance, and the institutional environment that determines how disclosed signals are used (Mergel et al., 2019; Begany & Gil-Garcia, 2024). In practice, “real-time” functions as an accelerator: it can shorten the time between spending decisions and public scrutiny, yet it can also amplify problems when data quality is weak or disclosure is hard to interpret.

A dominant finding is that accountability effects hinge more on transparency quality than on disclosure speed. Studies emphasize that “usefulness” requires clear classifications, consistent metadata, traceability, and user-centered design that matches the needs of different audiences, from auditors and legislators to journalists and citizens. Design-oriented research argues for transparency-by-design, where governments embed reliability and interpretability into portal architecture through standardization, audit trails, and clarity of purpose, rather than focusing only on publishing large volumes of data (Matheus et al., 2021). Related work on digital transparency shows that design choices such as dashboards versus raw data downloads shape who can use the information and what kinds of accountability claims become feasible (Matheus et al., 2023). This aligns with open government data research indicating that transparency is conditional: disclosure does not automatically translate into accountability unless users can connect the information to concrete questions and oversight activities (Matheus & Janssen, 2020).

The review also suggests that accountability gains are stronger when portals are tightly connected to oversight and control mechanisms that can intervene. Portals appear most consequential when they reduce the transaction costs of scrutiny

for actors who have formal authority or strong investigative capacity, such as supreme audit institutions, internal control units, legislative committees, and watchdog organizations. Evidence linking budget transparency to broader public-sector outcomes supports the idea that disclosure can matter at scale, but typically when embedded in wider governance systems rather than treated as a symbolic compliance tool (Cuadrado-Ballesteros & Bisogno, 2022). Adjacent evidence from digital transparency reforms in procurement suggests a similar logic: technology-enabled transparency tends to translate into stronger accountability when institutional frameworks and enabling conditions are robust (Khorana et al., 2024). For budget portals, this implies that features like machine-readable downloads, version histories, procurement-to-payment linkages, and exception flags may be especially important because they directly support verification and auditability, not just public visibility.

Participation-related outcomes are present but uneven. Studies indicate that transparency can stimulate engagement, especially around salient events, but sustained participation often depends on usability, relevance, and whether governments respond to feedback. Evidence from an online municipal crowdsourcing platform shows that digital transparency can increase participation, yet effects may be heterogeneous and sometimes short-lived (Zhao et al., 2023). This helps explain why real-time portals may empower intermediary users, such as journalists, NGOs, and analysts, more than the broader public unless interpretive layers are added (plain-language explanations, contextual benchmarks, and localized service implications). In parallel, research on digital participation tools suggests that

transparency produces stronger accountability feedback loops when participation channels are connected to decision processes and make it clear how public input is used (Shin et al., 2024).

Trust-related effects are mixed and appear particularly context-dependent. While transparency is often expected to build trust, the evidence indicates possible backfire risks when disclosures are confusing, contested, or interpreted as signals of wrongdoing without adequate context. Experimental research finds that transparency cues can have null or even negative relationships with trust under certain conditions, implying that transparency alone can prime skepticism rather than confidence (Grimmelikhuijsen et al., 2020). Cross-national work further suggests that the relationship between openness and trust is mediated by democratic capacity, meaning that institutional responsiveness and citizens' ability to act on information shape whether transparency becomes empowering or frustrating (Schmidhuber et al., 2021). For real-time budget portals, this implies that trust gains are more plausible when updates are credible, explanations are clear, and users see pathways for correction, sanction, or learning.

Taken together, the results support a conditional explanation: real-time budget transparency portals are most likely to improve accountability when the disclosed information is usable (clear, navigable, comparable), auditable (traceable, consistent, verifiable), and embedded in an actionable accountability ecosystem (oversight actors and participation channels can respond). This synthesis matches broader digital transformation insights that technology changes governance outcomes only when complemented by organizational capability and institutional

arrangements, not simply by increasing the speed of information release (Mergel et al., 2019; Begany & Gil-Garcia, 2024). It also suggests a practical implication for policy design: investments in real-time disclosure should be paired with investments in data quality, interpretive design, and oversight integration, otherwise portals risk producing transparency without accountability, or transparency with unintended trust costs.

## **5. Conclusion**

Real-time budget transparency portals appear most effective when they function as accountability infrastructure rather than as publicity tools. The reviewed evidence converges on a core conclusion: accountability outcomes improve when timeliness is paired with transparency quality and actionability. Portals that provide consistent classifications, strong metadata, traceable audit trails, and user-centered interfaces make budget information easier to verify, compare, and interpret. When these features are present, portals strengthen monitoring not only for citizens, but especially for oversight actors and intermediaries such as auditors, legislators, journalists, and watchdog groups who can translate signals into investigation, debate, and corrective action. In contrast, portals that prioritize speed of publication without reliability and interpretability can create information overload, selective use of data, and competing narratives, which may dilute accountability and sometimes undermine trust.

The discussion also suggests that “real-time” should be understood as an amplifier of governance conditions. In supportive environments, frequent updates

can shorten the time between allocation, spending, and scrutiny, enabling faster detection of irregularities and stronger responsiveness. In weaker environments, the same speed can amplify uncertainty: poorly explained figures, inconsistent categories, or missing context can make the portal vulnerable to misinterpretation and politicization, weakening the accountability value of openness. This helps explain why findings across contexts are mixed and why the most credible pathway is indirect: portals often improve accountability by lowering the cost of scrutiny and strengthening verification capacity for those positioned to act, rather than by automatically generating broad-based citizen monitoring.

Limitations in the evidence base mainly relate to inconsistency and attribution. Studies vary in what counts as “real-time”, what portal features are measured, and how accountability is operationalized, making cross-study comparisons imperfect and limiting firm causal claims. Future research should prioritize clearer and comparable indicators of portal timeliness and transparency quality, and test mechanism-specific impacts using comparative multi-case designs, pre-post evaluations, or quasi-experimental approaches. More work is also needed on distributional effects (who can use the portal and who cannot) and on unintended consequences such as confusion, overload, or trust backfire, so design recommendations can be more precise and context-sensitive.

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