

Low Digital Technology Adaptation and the Missing Data Culture in African Public Institutions: A Danger that Can No Longer be Ignored

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We are living in an era of unprecedented digital technological advancement. Governments, local authorities, development organizations and businesses are investing heavily in digital systems, data platforms, automation, cloud technologies and artificial intelligence (AI). These investments promise greater efficiency, improved service delivery, stronger accountability and better decision-making. Yet an uncomfortable reality is becoming increasingly difficult to ignore: the availability of digital technology does not necessarily translate into its effective adaptation and use.

This challenge is particularly explicit, for example, in under-resourced urban institutions in Sub-Saharan Africa, where urban institutions are increasingly expected to use digital technologies to manage growing populations, deliver public services, collect and analyse data, and respond to complex urban challenges. Unlike many well-resourced cities in Western Europe and North America, where digital infrastructure, institutional capacity, financial resources and data systems may be more developed, urban settings in Sub-Saharan Africa often operate within significant resource, infrastructure, technical capacity and institutional constraints. As a result, the challenge is not simply whether digital technologies are available, but whether they can be contextualized, adapted, consistently used and embedded within everyday institutional practices in urban settings..

Across many under-resourced urban institutions, sophisticated data systems can operate alongside paper records and spreadsheets. Dashboards may be developed but rarely consulted. Staff may receive training, user accounts may be created and data may be regularly entered into digital systems, yet the resulting information may have limited influence on planning, resource allocation, service delivery or decision and policymaking. In such contexts, digital technology can exist within an institution without fundamentally transforming how the institution operates.

This does not mean that well-resourced cities or institutions have fully overcome these challenges. Even where digital infrastructure and technological capacity are relatively advanced, organizations can still experience resistance to change, for example, the famous “[Sidewalk Smart City](#)” project in Toronto, Canada that eventually failed in early 2020s (Scassa, 2020). Other challenges like fragmented data systems, weak data-sharing practices, poor interoperability and organizational cultures that limit the use of evidence in decision-making. The nature and scale of the challenge, however, differ according to institutional and contextual conditions.

The problem, therefore, is no longer simply the absence of digital technology. Increasingly, the important question is whether institutions can adapt modern digital technologies to their operational realities, sustain their use and develop a data culture in which resultant reliable information and evidence routinely influence decisions. For under-resourced urban settings in particular, this requires moving beyond a technology-centred approach towards one that recognizes the importance of organizational culture, institutional capacity, contextual adaptation and data-use practices.

The danger is that cities and other public institutions may continue investing in digital technologies without achieving the institutional transformation these investments are intended to produce. Digital systems can be purchased, platforms can be launched and data can be collected, yet meaningful transformation may remain limited if digital technology is not adapted to context and embedded in organizational practice. This is a gap that public institutions can no longer afford to ignore.

The Growing Gap between Digital Technology, Contextualization and Transformation in Public Institutions

For many years, the focus of digital technology development was primarily on access, especially in under-resourced regions of the world. Institutions needed computers, internet connectivity, software, infrastructure and technical skills. These investments remain important, particularly in developing countries where infrastructure gaps continue to limit digital transformation progress. But access alone does not produce transformation.

There is a fundamental difference between investing in digital technology and transforming in a public institution. An institution can purchase software, develop a digital platform or introduce a sophisticated information system without fundamentally changing the way it operates. Digital technology may be available without being widely adopted or adapted to institutional operations. It may be adopted without being consistently used. And it may be used without becoming embedded in the institution's everyday practices.

A digital system is not transformational simply because it has been launched. A dashboard does not create value simply because it displays information. Data does not automatically improve decisions simply because it has been collected. Transformation begins when digital technology changes the way people work, when processed data into information, evidence and knowledge supports better decisions and policies, and when these practices become part of the institution's normal way of operating.

Research on digital information-systems adoption has consistently shown that organizational factors matter. Jackson's (2011) research on organizational culture and information-systems adoption, for example, demonstrates that culture can shape how people interpret and respond to new technologies. More recent research by Ghafoori et al. (2024) on data-driven digital transformation similarly highlights the importance of organizational culture in determining whether investments in technology and data translate into meaningful organizational outcomes. Their study found that organizational culture significantly influences data-driven digital transformation, which in turn affects operational performance.

The implication is clear: digital technology investment is only the beginning. Adoption, sustained use, contextual adaptation and institutional ownership are what ultimately create transformation. Digital solutions therefore need to be designed and adapted to the institutional, organizational and operational contexts in which they are expected to function. Rather than simply transferring technologies into institutions, organizations need to consider how systems fit existing workflows, decision-making structures, staff capacities, organizational cultures and local realities. This makes contextual adaptation a critical bridge between technology adoption and meaningful institutional transformation.

Why Digital Technology Adaptation is often the hardest part of public institution transformation

Acquiring digital technology can be relatively straightforward. Sustained adaptation is much harder. Digital Technology adaptation requires people to change familiar routines. It may require staff to learn new skills, share information differently and sometimes accept greater transparency and accountability. Managers may also need to change how they supervise teams, monitor performance and make decisions. This is where many digital initiatives encounter difficulties.

Sometimes digital technology is introduced without a clear understanding of the realities of the people expected to use it. Sometimes staff see a new system as an additional burden rather than a solution to an existing problem. In other cases, employees are expected to enter data into new digital platforms while continuing to maintain the old manual processes. Instead of making work easier, digital technology becomes another layer of work.

Leadership and institutional conditions also play an important role. When senior managers do not use the systems or data or information available to them, staff quickly recognize that digital technology is not central to how the institution operates. Similarly, when there are no clear responsibilities, incentives or consequences related to data/information system use, adoption can gradually weaken.

Research on public-sector data or information-system implementation has found that leadership support, stakeholder involvement and system usability are among the important factors supporting successful implementation. At the same time, user resistance, organizational silos and weak collaboration can significantly constrain adaptation. This helps explain why digital technology does not fail in isolation. A digital system may be technically sound but poorly aligned with institutional processes. Staff may have been trained but lack the support or motivation to change their behavior.

A digital data platform may generate useful information, but managers may not use that information when making decisions or policy. The result is a familiar pattern: technology is introduced with enthusiasm, used intensively during implementation and gradually abandoned once the project team, consultant or external support is no longer present. The technology remains, but the transformation never takes hold.

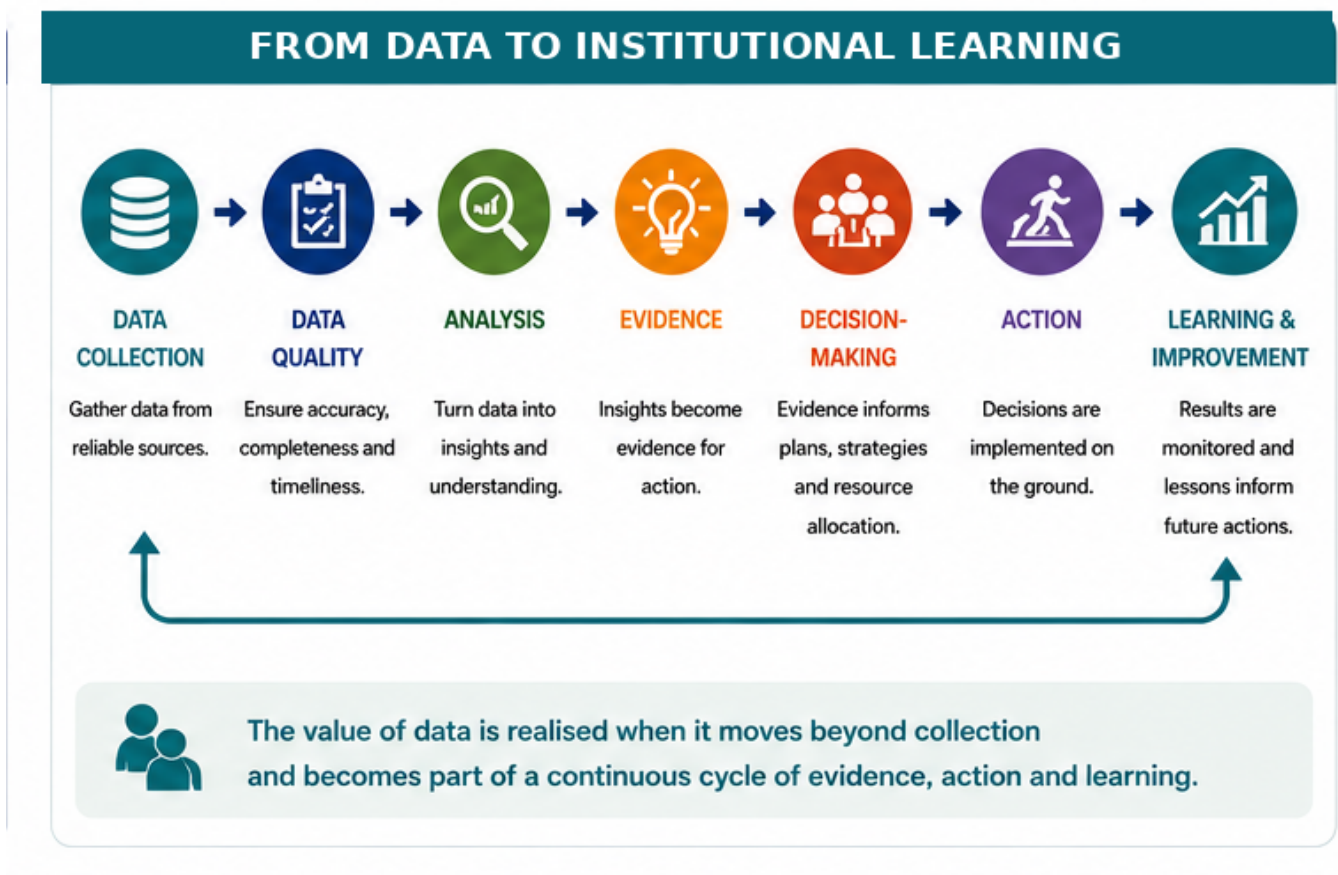
The Missing Data Culture

The same challenge is evident in the way many public institutions collect and use data. Today, government agencies and private organizations generate extraordinary amounts of data through administrative systems, monitoring tools, financial records, service-delivery platforms and digital applications. The volume of available data continues to grow. Yet having data is not the same as using it.

Many public institutions have become data-rich but evidence-poor. Data is collected because a report is required, a donor requests it or a system has been designed to capture it. But once the reporting requirement is fulfilled, the data may have little influence on planning, management, decision and policymaking. This disconnect between data collection and data/information use is one of the most common institutional challenges of this digital age.

The Organization for Economic Co-operation and Development (OECD, 2019) argued that government agencies need to move beyond simply collecting and publishing data and instead treat data as a strategic asset for policy-making, service delivery, organizational management and innovation. This requires more than databases and dashboards. It requires a data culture.

A strong data culture exists when evidence becomes part of normal institutional practice. Managers use data to understand operational and policy problems and monitor performance. Staff recognize that data quality matters because it will actually be used. Different departments share relevant data, and institutions create opportunities to learn from evidence. Data is no longer simply collected for reporting. It becomes part of how an institution thinks, learns and improves. But a data culture cannot be installed like software. It must be deliberately built through agreed values, principles, ethics, leadership, skills, trust, clear responsibilities and the consistent use of evidence in institutional processes.



The Connection between Digital Technology Adaptation and Data Culture

Digital Technology adaptation and data culture are often discussed separately. In reality, they are closely connected. A digital system that is not routinely used is unlikely to generate complete and reliable data and process it in meaningful information, evidence and knowledge to impact an institution. At the same time, an institution that does not value evidence has little incentive to use the digital systems designed to provide it. This can create a cycle of weak adaptation.

When digital systems are poorly used, data quality suffers. Poor quality information, evidence and knowledge reduces trust in the data. Managers become less likely to rely on it, and when managers do not use evidence, staff have less incentive to maintain the quality of the data generated. Eventually, the institution may conclude that the digital technology itself used to generate the data is not useful. Yet the underlying problem may not be digital technology. It may be the absence of the institutional culture needed to support its use. This is why digital transformation should not be viewed simply as technology deterministic. It is fundamentally determined by an agenda of institutional change. Digital Technology and data can only create value when the people, processes, incentives and leadership structures around them support their use.

Leadership: The Foundation of digital transformation and Institutional Change

Leadership plays a critical role in determining whether digital technology and data use become part of an institution's everyday practice. The priorities leaders set, the evidence they rely on when making decisions, the performance they choose to monitor and the behaviors they recognize and reward all send powerful signals to staff about what truly matters. When leaders consistently use data to guide decisions and demonstrate the value of digital systems in their own work, they help create an environment in which digital technology, data and evidence are valued as essential tools for improving institutional performance.

Conversely, when leaders continue to rely entirely on informal reports, personal judgment and traditional processes, it becomes difficult to expect staff to embrace new digital systems that generate quality data or develop confidence in evidence-informed decision-making. Leadership support has been identified in research as an important driver of successful information-system implementation (cite that research here). Active and committed leadership can help create a shared vision for change, align organizational priorities and reduce resistance to new ways of working through digital data systems.

The responsibility for digital transformation cannot therefore be left entirely to digital technology departments, data specialists or project teams. Digital Technology teams can maintain systems. Data specialists can analyze datasets to generate relevant information. Monitoring and evaluation teams can collect evidence. But leadership determines whether these resources become central to institutional work. Building a data culture and sustaining technology adaptation are, ultimately, responsibilities of institutional leadership and governance.

Moving from digital Technology Projects to Institutional Transformation

Perhaps the most important shift institutions need to make is in how they define digital success. Too often, digital initiatives are considered successful once a system has been developed, staff have been trained, users have been registered and data has started flowing into the platform. While these are important achievements, they are only the beginning of transformation, not its final measure.

The real test is whether digital technology becomes embedded in the institution's everyday work. A digital system creates lasting value when it improves established processes, supports managers in making better decisions and continues to function beyond the life of the project or external support that introduced it.

This requires a deliberate shift from treating technology as a short-term project to treating it as an institutional capability. Digital Technology should be introduced to address clearly defined problems, designed around the realities of its users and integrated into existing workflows. At the same time, institutions need clear ownership arrangements, defined responsibilities, adequate resources for maintenance and a commitment to continuously improving the system.

The same principle applies to data. Collecting large volumes of information is not enough if that information remains in databases or reports. Data becomes valuable when it is routinely analysed,

discussed and used to guide planning, monitor performance and improve decisions. Ultimately, successful digital transformation is measured not by the number of technologies an institution introduces, but by the extent to which technology and data become part of how the institution operates, learns and improves over time.

The goal, therefore, should not simply be to deliver digital technology projects, but to build institutions that can sustain, use and continuously learn from the technologies they invest in.

Digital Technology can be purchased. Software can be developed. Data can be collected. But adaptation must be built, and a transformative leadership which values a data culture must be deliberately created.

References

- 1) Ghafoori, A., Gupta, M., Merhi, M. I., Gupta, S., & Shore, A. P. (2024). *Toward the Role of Organizational Culture in Data-Driven Digital Transformation*. *International Journal of Production Economics*.
- 2) Jackson, S. (2011). *Organizational culture and information systems adoption: A three-perspective approach*. *Information and Organization*, 21(2), 57–83.
- 3) Lemmettylä, A., & Kinnunen, U.-M. (2025). *Driving and Restraining Forces in the Implementation of Information Systems in the Public Sector: Scoping Review*. *JMIR Human Factors*, 12, e71575.
- 4) OECD. (2019). *A Data-Driven Public Sector: Enabling the Strategic Use of Data for Productive, Inclusive and Trustworthy Governance*. *OECD Working Papers on Public Governance*.
- 5) Scassa, T. (2020). *Designing data governance for data sharing: Lessons from Sidewalk Toronto*. *Technology and Regulation*, 2020, 44–56.
<https://doi.org/10.26116/techreg.2020.005>
- 6) Welch, E. W., & Feeney, M. K. (2014). *Technology in Government: How Organizational Culture Mediates Information and Communication Technology Outcomes*. *Government Information Quarterly*.