Sarcouncil Journal of Engineering and Computer Sciences

ISSN(Online): 2945-3585

Volume- 04| Issue- 10| 2025

Research Article **Received:** 20-09-2025| **Accepted:** 15-10-2025 | **Published:** 27-10-2025

Cloud-Based Shared Service Platforms for Public Sector Transformation

Manoj Srivastava

University of the Cumberlands , Williamsburg ,KY

Abstract: Cloud-based shared service platforms (CBSSPs) are increasingly central to the digital transformation agendas of public sector institutions. These platforms enable governments to consolidate IT functions, enhance interoperability, and improve service delivery through centralized, cloud-hosted infrastructures. This review examines the conceptual foundations, technological architecture, implementation barriers, and governance frameworks associated with CBSSPs in the public sector. A theoretical model is proposed to illustrate how layered integration of cloud infrastructure, standardized services, and policy oversight can yield transformation outcomes such as efficiency, transparency, and public value creation. While the adoption of CBSSPs presents opportunities for institutional innovation, it also raises challenges related to data governance, cybersecurity, inter-agency coordination, and regulatory compliance. The review concludes with a discussion on future directions for research and practice to ensure the ethical, scalable, and citizen-centered deployment of these platforms in public administration.

Keywords: Cloud Computing; Shared Services; Public Sector Innovation; Digital Government; Interoperability; Service Integration; Governance; ICT Strategy; Public Value; e-Government Transformation.

INTRODUCTION

The adoption of cloud-based shared service platforms (CBSSPs) has become a cornerstone in the digital transformation of public sector institutions across the globe. These platforms offer a centralized infrastructure for delivering IT and administrative services across multiple governmental agencies, thereby promoting standardization, scalability, and cost efficiency in public administration (Janssen, M., & Joha, A. 2006). Unlike traditional siloed models, shared service platforms enable inter-agency collaboration by pooling resources, data, and capabilities through a cloud-based infrastructure, aligning well with public sector objectives of transparency, efficiency, and service delivery improvement (Bannister, F., & Connolly, R. 2012).

In recent years, public organizations have faced mounting pressures to modernize legacy systems, respond to increasing citizen expectations for digital services, and adapt to evolving regulatory demands. Cloud-based shared service platforms have emerged as a viable response to these challenges, offering elastic computing resources, real-time data processing, and integrated services across organizational boundaries (Murray, K. R., & Hsieh, I. K. 2008). This shift is also driven by macro-level policy initiatives such as digital government strategies, open data mandates, and budgetary constraints that encourage shared infrastructure over individual agency investments (Larsson, A., & Teigland, R. 2019).

The relevance of this topic has been amplified in the aftermath of the COVID-19 pandemic, which exposed critical limitations in fragmented IT systems within governments and underscored the need for agile, interoperable, and resilient public digital infrastructure (Draheim, D., & Butt, S. 2019). Cloud-based shared services enabled rapid deployment of crisis response systems such as digital health portals, unemployment claims processing, and vaccination scheduling platforms, demonstrating their value not only in operational efficiency but also in institutional resilience.

Despite these advantages, the implementation of CBSSPs in the public sector remains fraught with challenges. One major concern is data governance, particularly regarding issues of privacy, security, and jurisdictional control, given the sensitive nature of public sector data and the reliance on third-party cloud service providers (Emery, S. 2012). Moreover, organizational resistance to change, lack of digital skills, and inter-agency coordination barriers continue to impede effective adoption and scaling (Emery, S. 2012; Cordella, A., & Paletti, A. 2018). While several case studies and technical papers have addressed the benefits and risks of cloud computing in public administration, there is a notable gap in consolidated research that critically examines the structural, operational, and policy-related implications of shared service platforms delivered through the cloud.

This review aims to explore how cloud-based shared service platforms are reshaping the architecture of public sector service delivery. It evaluates the technological foundations, governance frameworks, implementation

***Corresponding Author:** Manoj Srivastava

DOI- https://doi.org/10.5281/zenodo.17516766

challenges, and transformation outcomes associated with CBSSPs. The review will also highlight global case examples, identify key success factors and failure points, and suggest future directions for research and practice.

LITERATURE REVIEW

Table 1: Summary of Key Research on Cloud-Based Shared Service Platforms in the Public Sector

Purpose / Objective	Methodology	Key Findings	Relevance to Research	Ref. No.
To explore the factors influencing the adoption of cloud computing by SMEs in the North East of England using a multi-perspective framework.	Empirical research using qualitative interviews and quantitative surveys with SME stakeholders.	Identified technological, organizational, and environmental (TOE) factors influencing adoption. Barriers include security concerns and a lack of knowledge; drivers include cost reduction and flexibility.	Provides a grounded framework for analyzing cloud adoption in small organizations, which is applicable in public sector digital transformation contexts.	(Alshamaila, Y. 2013)
To review the development of interactive governance as a paradigm in public administration and suggest ways it can advance further.	Theoretical literature review and critical discourse analysis of governance frameworks.	Highlights the evolution of governance from hierarchical models to interactive and network-based systems. Emphasizes stakeholder engagement and co-production of policy.	Offers insights into modern governance models that inform e-government and smart governance strategies.	(Hart, P. T. 2013)
To test the benefit-confirmation model in explaining continued usage of mobile instant messaging (MIM) applications through comparative analysis.	Quantitative study using survey data analyzed through structural equation modeling (SEM).	Found that user satisfaction and perceived usefulness significantly influence continued use of MIM apps. Differences exist between users of KakaoTalk and Joyn, suggesting cultural or brand-based influences.	Valuable for understanding citizen engagement and continued adoption of public digital services.	(Oghuma, A. P. *et al.*, 2015)
To analyze city managers' perceptions of open government policies, including their development and implementation at the local government level in Spain.	Survey-based empirical study with local government officials across multiple Spanish municipalities.	Found varied awareness and implementation of open government initiatives. Perceived benefits included transparency and improved citizen trust; challenges included a lack of resources and political support.	Highlights practical implementation gaps in open government policies, informing strategies for local digital governance.	(Criado, J. I., & Ruvalcaba-Gomez, E. A. 2018)
To provide a roadmap for smart governance research and practice, integrating digital technologies with	Conceptual framework and literature synthesis presented at a leading	Identifies key components of smart governance: data-driven decision-making, transparency, citizen engagement,		(Scholl, H. J., & Scholl, M. C. 2014)

Publisher: SARC Publisher

participatory governance.	information science conference.	and integrated IT infrastructure.		

PROPOSED THEORETICAL MODEL AND FRAMEWORK

Overview

The transformation of public sector operations through cloud-based shared service platforms (CBSSPs) is a multi-dimensional process involving not just technological innovation, but also institutional restructuring, governance adaptation, and policy evolution. A theoretical framework that incorporates these dynamic layers is essential to understanding how such platforms function within complex bureaucratic ecosystems. The proposed model is structured into five interdependent layers: Service Demand Layer, Cloud Infrastructure Layer, Shared Services Management Layer, Governance Layer, and Transformation Outcomes Layer. Each layer reflects a critical stage in the lifecycle of cloud-based shared services and highlights key operational and institutional processes involved in their implementation.

Conceptual Model of Cloud-Based Shared Services in the Public Sector

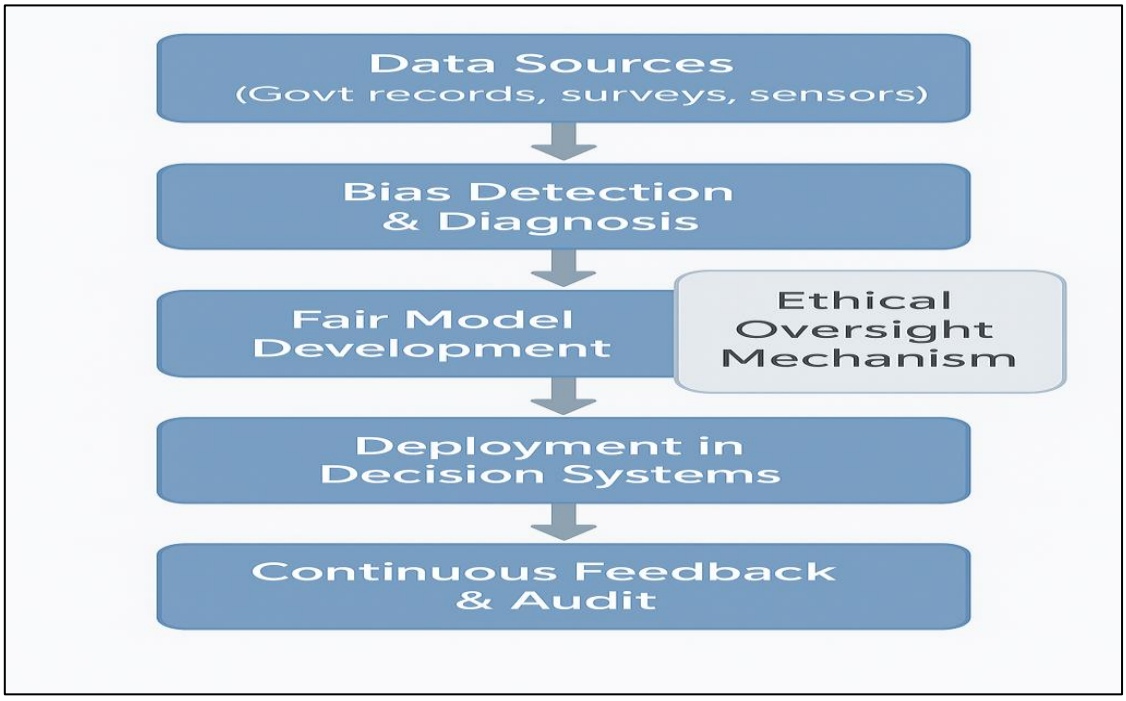

Figure 1: Theoretical Framework of CBSSP Implementation in the Public Sector

Description of Framework Components

Service Demand Layer

This layer represents demand from end-users, including citizens, businesses, and intra-governmental agencies, for digital public services. Increasing expectations for rapid, secure, and personalized service delivery act as a catalyst for transitioning toward shared cloud services (Margetts, H. 2008).

Cloud Infrastructure Layer

The second layer encompasses the technological backbone of the system, including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). These cloud service models provide the foundation for hosting, managing, and delivering scalable applications and tools used across different government departments (Marston, S. *et al.*, 2011). Public-private partnerships are often leveraged here to source infrastructure from third-party providers under strict service level agreements (SLAs).

Shared Services Management Layer

This operational core enables standardized and integrated services such as HR systems, procurement, accounting platforms, and records management. It facilitates multi-tenancy, workflow automation, and inter-agency data sharing, reducing duplication and siloed efforts (Keele, B. J. 2012). Configuration management,

Publisher: SARC Publisher

API standardization, and orchestration tools function at this level to ensure seamless integration of services.

Governance and Compliance Layer
This layer ensures adherence to legal frameworks, cybersecurity protocols, and data privacy laws. Cloud deployments in the public sector must comply with national regulations such as the EU General Data Protection Regulation (GDPR), public procurement guidelines, and institutional ethics standards (Wijnhoven, F. *et al.*, 2015). Governance bodies are responsible for overseeing access control, incident response, and audit compliance mechanisms.

Transformation Outcomes Layer
The ultimate objectives of deploying CBSSPs are realized in this final layer. These include improved service efficiency, enhanced transparency, interdepartmental interoperability, and measurable public value outcomes (Misuraca, G. *et al.*, 2013). This layer also includes performance monitoring indicators and citizen feedback systems that feed back into earlier layers to improve service responsiveness and accountability.

Theoretical Alignment
The model aligns with the principles of New Public Management (NPM) and Digital Era Governance (DEG), where efficiency, responsiveness, and integration are prioritized through technological enablement (Cordella, A., & Bonina, C. M. 2012). Furthermore, the model recognizes public value theory by emphasizing outcomes beyond efficiency, such as democratic participation, trust, and equity as essential markers of success in digital public administration.

APPLICATIONS OF CLOUD-BASED SHARED SERVICE PLATFORMS IN PUBLIC SECTOR TRANSFORMATION

Cloud-based shared service platforms (CBSSPs) are being used across governments worldwide to modernize public administration, streamline service delivery, and enhance transparency. These platforms consolidate multiple services onto a centralized, scalable infrastructure, enabling different public agencies to operate efficiently through shared digital environments. Below are key areas of application:

Inter-Agency Data Sharing and Interoperability
CBSSPs enable real-time, secure data exchange between different government departments, reducing redundancy and improving the speed and accuracy of decision-making. A prominent example is Estonia's X-Road platform, which allows over 900 public and private sector entities to interact securely across systems. Citizens benefit from integrated services such as digital identity verification, healthcare access, and tax reporting, all functioning through a shared, cloud-based infrastructure. The platform eliminates the need for repetitive data submissions and ensures consistency across agencies.

Centralized Procurement and IT Resource Management
Many governments use CBSSPs to standardize procurement processes and consolidate IT infrastructure. The United Kingdom's G-Cloud and Digital Marketplace initiatives allow public sector organizations to procure pre-approved cloud services from vetted suppliers. By centralizing procurement on a cloud platform, agencies reduce costs, ensure compliance, and shorten procurement cycles. The G-Cloud framework has significantly minimized duplication of IT systems across departments while promoting transparent and cost-effective service acquisition.

Citizen-Centric Service Portals
CBSSPs support unified citizen service portals that provide multiple government services through a single digital interface. For instance, India's Digital India program leverages a national cloud platform, MeghRaj, to host e-governance services such as Aadhaar (national identity), DigiLocker (digital document storage), and eHospital (healthcare services). Citizens can access these services remotely, reducing administrative burden and improving accessibility, especially in rural areas.

Crisis Response and Emergency Services
During times of crisis, CBSSPs offer scalable infrastructure for the rapid deployment of critical services. For example, in response to the COVID-19 pandemic, several governments used cloud-based platforms to roll out digital vaccination scheduling systems, unemployment benefits processing, and contact tracing apps. Germany's Corona-Warn-App, developed using a shared cloud infrastructure, enabled millions to participate in pandemic monitoring while preserving data privacy through decentralized design.

Administrative Automation and Workflow Optimization
Public agencies utilize CBSSPs to automate administrative processes, including human

Publisher: SARC Publisher

resource management, payroll, finance, and procurement. The Singapore Government Technology Agency (GovTech) uses a centralized HR platform that automates employee onboarding, leave management, and performance tracking for all public servants. By integrating these processes onto a shared cloud system, the government achieves higher efficiency, better data accuracy, and real-time analytics for decision-making.

Cross-Border Digital Government Collaboration

CBSSPs also facilitate international collaborations. The Nordic Institute for Interoperability Solutions (NIIS) supports the cross-border use of Estonia's X-Road platform in Finland and Iceland, enabling shared services such as social security data exchange and mutual recognition of digital identities. These cloud-enabled cross-border collaborations demonstrate the potential of CBSSPs to support regional digital governance ecosystems.

Compliance, Security, and Governance Standardization

CBSSPs offer built-in tools for enforcing compliance with legal and security standards such as GDPR, ISO 27001, and national data protection laws. Through centralized policy enforcement, governments can manage cybersecurity, user access, and audit logging across all agencies using the platform. This improves risk management and ensures uniform governance practices across departments.

FUTURE DIRECTIONS

Despite growing interest in CBSSPs as enablers of public sector transformation, several research and implementation gaps remain. Future work should address the following areas:

AI-Integrated Shared Services

Emerging research should explore the convergence of AI with cloud-based platforms to enhance decision-making, automate workflows, and personalize citizen services. Predictive analytics, NLP-driven service chatbots, and intelligent process automation may be key next-generation features of CBSSPs.

Cross-Border Shared Service Models

There is a lack of comparative studies analyzing shared service platforms deployed across different jurisdictions, especially in multinational governance bodies (e.g., European Union). Future studies should investigate how regulatory alignment, digital sovereignty, and cloud interoperability are managed in cross-border platforms.

Sustainable Cloud Infrastructure

Research should also explore the environmental sustainability of large-scale government cloud platforms. The energy consumption and carbon footprint of public cloud services must be examined, along with policies promoting green IT strategies in the public sector.

Resilience and Crisis Readiness

The COVID-19 pandemic highlighted the need for agile and resilient IT infrastructures. Future studies should analyze how CBSSPs can support crisis response mechanisms such as emergency aid disbursement, rapid citizen communication, or health service delivery under extreme conditions.

Citizen Trust and Transparency Metrics

Quantitative and qualitative measures of citizen trust, digital inclusion, and service satisfaction should be integrated into evaluations of CBSSPs. Research should develop robust frameworks to assess how transparency, data privacy, and algorithmic accountability influence public trust in shared digital infrastructures.

CONCLUSION

Cloud-based shared service platforms represent a pivotal innovation in public administration, offering the potential to centralize service delivery, optimize resources, and enhance cross-agency collaboration. Through a layered theoretical model, this review has highlighted the interdependencies between cloud infrastructure, shared service management, governance mechanisms, and transformational outcomes. While CBSSPs offer significant benefits in terms of efficiency and scalability, their successful implementation requires robust policy alignment, data governance, capacity building, and continuous evaluation of public value. As governments continue to navigate the complexities of digital transformation, CBSSPs will play a central role in shaping the future of service delivery, provided they are deployed in ways that are transparent, equitable, and responsive to evolving societal needs.

REFERENCES

1. Janssen, M., & Joha, A. "Motives for establishing shared service centers in public administrations." *International journal of information management* 26.2 (2006): 102-115.

Publisher: SARC Publisher

2. Bannister, F., & Connolly, R. "Forward to the past: Lessons for the future of e-government from the story so far." *Information Polity* 17.3-4 (2012): 211-226.
3. Murray, K. R., & Hsieh, I. K. "Archiving Web-published materials: A needs assessment of librarians, researchers, and content providers." *Government Information Quarterly* 25.1 (2008): 66-89.
4. Larsson, A., & Teigland, R. "An introduction to digital welfare: A way forward?." *Digital Transformation and Public Services*. Routledge, (2019). 1-11.
5. Draheim, D., & Butt, S. "Relevance of the UN e-Government surveys and the OECD Digital Government Index 2019 to e-government Stakeholders: The Case of Antigua and Barbuda." (2019).
6. Emery, S. "Factors for consideration when developing a bring your own device (BYOD) strategy in higher education." *Unpublished manuscript, University of Oregon, Eugene, OR* (2012).
7. Cordella, A., & Paletti, A. "ICTs and value creation in public sector: Manufacturing logic vs service logic." *Information Polity* 23.2 (2018): 125-141.
8. Alshamaila, Y., Papagiannidis, S., & Li, F. "Cloud computing adoption by SMEs in the north east of England: A multi-perspective framework." *Journal of enterprise information management* 26.3 (2013): 250-275.
9. Hart, P. T. "Interactive Governance: Advancing The Paradigm-by Jacob Torfing, B. Guy Peters, Jon Pierre and Eva Sørensen." (2013): 1071-1073.
10. Oghuma, A. P., Chang, Y., Libaque-Saenz, C. F., Park, M. C., & Rho, J. J. "Benefit-confirmation model for post-adoption behavior of mobile instant messaging applications: A comparative analysis of KakaoTalk and Joyn in Korea." *Telecommunications Policy* 39.8 (2015): 658-677.
11. Criado, J. I., & Ruvalcaba-Gomez, E. A. "Perceptions of city managers about open government policies: concepts, development, and implementation in the local level of government in Spain." *International Journal of Electronic Government Research (IJEGR)* 14.1 (2018): 1-22.
12. Scholl, H. J., & Scholl, M. C. "Smart governance: A roadmap for research and practice." *IConference 2014 proceedings* (2014).
13. Margetts, H. "Public management change and e-government: the emergence of digital-era governance." *Routledge handbook of internet politics*. Routledge, 2008. 114-127.
14. Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J., & Ghalsasi, A. "Cloud computing—The business perspective." *Decision support systems* 51.1 (2011): 176-189.
15. Keele, B. J. "Review of Patent Reform in the 112th Congress: Innovation Issues." (2012).
16. Wijnhoven, F., Ehrenhard, M., & Kuhn, J. "Open government objectives and participation motivations." *Government information quarterly* 32.1 (2015): 30-42.
17. Misuraca, G., Codagnone, C., & Rossel, P. "From practice to theory and back to practice: Reflexivity in measurement and evaluation for evidence-based policy making in the information society." *Government Information Quarterly* 30 (2013): S68-S82.
18. Cordella, A., & Bonina, C. M. "A public value perspective for ICT enabled public sector reforms: A theoretical reflection." *Government information quarterly* 29.4 (2012): 512-520.

Source of support: Nil; **Conflict of interest:** Nil.

Cite this article as:
Srivastava, M. "Cloud-Based Shared Service Platforms for Public Sector Transformation." *Sarcouncil Journal of Engineering and Computer Sciences* 4.10 (2025): pp 371-376.

Publisher: SARC Publisher