

Financial transparency and audit as the cornerstones of smart cities' governance

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Abstract

Financial transparency and audit are increasingly recognized as the cornerstone of effective governance in smart cities. In the 21st century, cities are no longer merely territorial units; they are technologically integrated systems where data, information, and financial resources drive public value. The concept of a smart city extends beyond infrastructure and digital tools—it fundamentally depends on transparent and accountable financial management that fosters trust between citizens and municipal authorities. Financial transparency ensures that citizens have clear access to budget allocations, expenditures, investments, and public contracts. This visibility transforms the budget from a bureaucratic document into a tool for participatory governance, enabling citizens to engage with decision-making processes and hold authorities accountable. Transparency strengthens social trust, reduces corruption risks, and legitimizes policy decisions. Audit in smart cities has evolved from traditional assessment to a strategic governance mechanism. Data-driven auditing, real-time monitoring, and predictive analysis allow authorities to identify inefficiencies, prevent fraud, and optimize resource allocation. By integrating auditing with technology, cities achieve higher fiscal discipline and operational sustainability. Emerging technologies such as blockchain, artificial intelligence, and open data platforms enhance both transparency and audit effectiveness. Blockchain provides immutable records of financial transactions, AI enables trend analysis and anomaly detection, and open data empowers citizens to independently analyze information and participate in urban governance. Despite these opportunities, challenges remain, including data security, skills shortages among auditing professionals, political resistance, and the high costs of technological implementation. Nevertheless, the synthesis of financial transparency and effective auditing establishes the ethical and functional backbone of smart cities. Ultimately, a smart city's success is measured not by technological sophistication alone, but by the trust, accountability, and participatory engagement that transparency and audit facilitate. These elements form the essential foundation for resilient, equitable, and citizen-centered urban governance.

Keywords: Innovative audit, Corruption risks, City building.

1. Introduction

21st-century cities are increasingly complex, functioning as technologically integrated ecosystems** where urban planning, public services, and financial management intersect with citizens' daily lives. In this context, smart city governance requires a robust ethical and financial framework, not just digital infrastructure. Financial transparency and auditing have evolved into key mechanisms that foster trust, accountability, and citizen engagement [1][2].

1.1 Smart City Governance Principles

The concept of a smart city emphasizes technology serving citizens, not merely existing for administrative convenience. Optimal resource allocation—from energy and transport to health and education—depends on data analytics, artificial intelligence, and integrated platforms. However, technology alone cannot define

a smart city. Its effectiveness is measured by transparent governance, operational accountability, and active citizen participation [3][6].

State audit reports provide an evidence-based diagnostic foundation, highlighting systemic weaknesses and opportunities for improvement in municipal management. Therefore, financial transparency is central to the ethical and functional core of smart city development.

2. Literature Review

Recent studies indicate that smart city success is intertwined with financial governance [4][5]. Cities like Barcelona, Singapore, and Seoul demonstrate that public access to financial information increases trust, reduces corruption, and supports participatory urban governance [7][9].

Key findings from literature include:

- 1. Financial transparency strengthens institutional trust and civic engagement.
- 2. Auditing evolves from compliance verification to strategic governance through predictive analytics and real-time monitoring.
- 3. Integration of emerging technologies—blockchain, AI, and open data platforms—enhances accountability and public participation.
- 4. Challenges persist, such as data security risks, skill shortages, and political resistance, highlighting the need for continuous capacity building and digital literacy initiatives.

3. Methodology

This research analyzes municipal audit reports from the State Audit Office of Georgia (SAO), covering the period 2018–2024, to evaluate their impact on smart city governance.

3.1 Data Collection

- 2018–2024 audit reports from SAO were collected, classified by audit type (financial, compliance, performance) [3].
- Municipal development strategies and documents linked to smart city concepts were reviewed.

3.2 Analytical Framework

The framework examined four key components:

- Efficiency: Optimal use of municipal resources;
- Transparency & Accountability: Open governance and fiscal discipline;
- Digital Governance Readiness: Preparedness for digital and smart technologies;
- Innovation Potential: Ability to implement smart services and infrastructure.

3.3 Analysis Methods

- Qualitative: Thematic categorization of audit findings, identification of common deficiencies, systemic gaps, and recommendations;
- Quantitative: Classification of financial anomalies, delays, and inefficiencies; creation of comparative indices for smart city readiness;
- Interpretative: Mapping audit results to smart governance dimensions: smart mobility, infrastructure, services, and citizen engagement.

4. Results

Table 1. Audit Type Distribution (2018–2024)

Year	Financial Audit	Compliance Audit	Performance Audit	Total
2018	12	9	4	25
2019	15	11	5	31
2020	14	10	6	30

2021	17	12	7	36
2022	19	15	8	42
2023	18	14	9	41
2024	20	16	10	46

Source: State Audit Office of Georgia. Annual Audit Reports of Municipal Units for 2018-2024, Tbilisi

Table 2. Common Deficiencies

Type of Deficiency	Frequency (%)	Explanation
Unplanned/duplicated expenditures	28%	Weak budget planning processes
Unjustified procurements	24%	Lack of competition, improper procurement
Project delays	17%	Contractor oversight deficiencies
Reporting transparency issues	14%	Incomplete or delayed reports
Inadequate documentation	10%	Administrative process gaps
Other	7%	Miscellaneous minor deficiencies

Source: State Audit Office of Georgia. Annual Audit Reports of Municipal Units for 2018-2024, Tbilisi

Table 3. Smart City Readiness Index

Municipality	Digital Governance (0–10)	Infrastructure (0–10)	Innovative Services (0–10)	Data Management (0–10)	Overall Index
Tbilisi	9	8	9	8	8.5
Batumi	7	7	8	7	7.25
Kutaisi	6	6	7	6	6.25
Rustavi	5	6	6	5	5.5
Telavi	4	5	5	4	4.5
Zugdidi	4	4	5	4	4.25

Source: State Audit Office of Georgia. Annual Audit Reports of Municipal Units for 2018-2024, Tbilisi

5. Discussion

Audit results highlight gaps in financial planning, infrastructure, and data governance, affecting smart city potential.

- Unplanned expenditures and delays indicate the need for stronger oversight.
- Municipalities with higher readiness indices exhibit better digital governance, infrastructure, and innovation capacity.
- Audit reports provide critical evidence for participatory governance, risk management, and strategic technology implementation [1][3][5][6].

5.1 Financial Transparency

Transparency enables citizen trust, accountability, and participation. Open budgets and public contract disclosure ensure policy legitimacy and reduced corruption [2].

5.2 Infrastructure and Project Management

Timely completion and quality control are prerequisites for smart city technologies, including IoT networks and intelligent public services [4][5].

5.3 Data Governance

Accurate, integrated, and updated municipal data is essential for planning and operational efficiency. Deficiencies in property records and databases limit evidence-based decision-making [6][8].

5.4 Citizen Engagement

Active citizen participation strengthens open and participatory governance. Publishing audit findings enhances transparency and engagement [1][3].

5.5 International Experience

Cities like Singapore, Barcelona, Tallinn, and Seoul demonstrate the benefits of digitally visible governance, increasing trust and reducing corruption [7][9][10].

6. Conclusion

Audit results highlight gaps in financial planning, infrastructure, and data governance, affecting smart city potential. Unplanned expenditures and delays indicate the need for stronger oversight.

* Municipalities with higher readiness indices exhibit better **digital governance, infrastructure, and innovation capacity**.

* Audit reports provide **critical evidence for participatory governance, risk management, and strategic technology implementation** [1][3][5][6].

Financial transparency and effective auditing are fundamental to the successful governance of smart cities. Technology alone cannot ensure effective urban management; it is the ethical use of resources, transparent financial practices, and accountable governance that determine the quality of municipal administration.

Key conclusions from the analysis of Georgian municipal audit reports (2018–2024) include:

1. Financial transparency fosters trust and participation. Open access to budget allocations, expenditures, and contracts empowers citizens, reduces corruption risks, and legitimizes municipal decision-making .
2. Audit reports provide critical insights. Identifying systemic weaknesses in financial planning, project management, and data governance allows municipalities to design evidence-based strategies for smart city development.
3. Infrastructure and data management are foundational. Timely project completion, quality control, and integrated digital data platforms are prerequisites for implementing reliable smart city technologies.
4. Citizen engagement is essential. Transparency, open governance, and participatory mechanisms ensure that residents act as partners rather than passive recipients of municipal services.
5. International experience offers guidance. Successful models from Singapore, Barcelona, Tallinn, and Seoul demonstrate that visible, accountable, and technology-enabled municipal governance enhances citizen trust and enables sustainable urban development.
6. Challenges remain. Data security, staff capacity, political resistance, and high costs require continuous attention, investment, and strategic planning.

Ultimately, the synthesis of financial transparency and auditing forms the ethical and functional backbone of smart cities. Municipalities that integrate these principles with innovative technologies and participatory governance can create resilient, equitable, and citizen-centered urban environments. Audit reports not only monitor compliance but also serve as strategic tools for planning, evaluation, and sustainable growth in the digital era.

Financial transparency + auditing + technology + citizen participation = resilient, equitable, and citizen-centered smart cities.

References

- [1] D. Sologhashvili and T. Udesiani, “Mechanisms to control the effective management of demographic problems in Georgia”, Moambe, 2021.
- [2] D. Sologhashvili and T. Udesiani, “Mechanisms to control the effective management of demographic problems in Georgia”, Moambe, 2021.
- [3] State Audit Office of Georgia. “Annual Audit Reports of Municipal Units for 2018-2024”, Tbilisi.
- [4] H. Chourabi, et al. (2012). “Understanding Smart Cities”. 45th Hawaii Int. Conf. System Sciences.
- [5] Hyka Dolantina, Kodra Festim, “Cybersecurity in Albanian Accounting”, 2025.
- [6] A. Meijer & M. P. R. Bolívar. “Governing the Smart City”. Int. Review of Admin Sciences, 82(2), 392–408.2016
- [7] M. Batty, “The New Science of Cities”. MIT Press. 2013
- [8] R. Kitchin, The Data Revolution. SAGE. 2014

- [9] V. Albino, U. Berardi & R. M. Dangelico. “Smart Cities: Definitions, Dimensions, and Performance. J Urban Tech, 22(1), 3–21. 2015
- [10] OECD. “Smart Cities and Inclusive Growth”. OECD Publishing. 2020
- [11] A. Townsend, “Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia”. W. W. Norton & Company. 2013