Blockchain and corruption control: the case of the Brazil Blockchain Network

Erica Souza Siqueira, Marcos Fernandes Gonçalves da Silva, Marco Antonio Carvalho Teixeira

https://doi.org/10.1590/0034-761220250545x

Submitted on: 2026-07-16
Posted on: 2026-07-17 (version 1)
(YYYY-MM-DD)

RAP REVISTA DE ADMINISTRAÇÃO PÚBLICA

FGV EBAPE

Article

Blockchain and corruption control: the case of the Brazil Blockchain Network

Erica Souza Siqueira

Fundação Getulio Vargas (FGV EAESP), Escola de Administração de Empresas de São Paulo, São Paulo, SP, Brazil

Marcos Fernandes Gonçalves da Silva

Fundação Getulio Vargas (FGV EAESP), Escola de Administração de Empresas de São Paulo, São Paulo, SP, Brazil

Marco Antonio Carvalho Teixeira

Fundação Getulio Vargas (FGV EAESP), Escola de Administração de Empresas de São Paulo, São Paulo, SP, Brazil

Abstract

This paper examines how blockchain technology can mitigate corruption in the Brazilian public sector, with a focus on the Rede Brasil Blockchain (RBB), an initiative of the TCU and BNDES. Using the RBB as a case study, we conducted a thematic analysis based on TCU decisions, official documents, and the transcript of its launch. Six themes emerged: trust, transparency, and control; governance and sustainability; skills and training; public services and the citizen; and innovation. These themes were organized into a three-stage transformation process model: enabling infrastructure, public sector transformation, and social impacts. The discussion relates the RBB to the paradigms of New Public Management (NPM) and New Public Governance (NPG), proposing the New Trustless Public Governance

DOI: https://doi.org/10.1590/0034-761220250545x
Submitted on October 13, 2025 and accepted on June 24, 2026.
[Original version]

(NPTG), which describes blockchain as a trust machine. The results indicate that the RBB promotes transparency and control through shared governance, depending on digital maturity, institutional capacity, and innovation readiness.

Keywords: corruption, blockchain, Brazilian blockchain network, Brazil.

Blockchain e controle da corrupção: o caso da Rede Blockchain Brasil

Resumo

Este artigo analisa como a tecnologia blockchain pode mitigar a corrupção no setor público brasileiro, com foco na Rede Brasil Blockchain (RBB), iniciativa do TCU e BNDES. Utilizando a RBB como estudo de caso, realizamos uma análise temática baseada em decisões do TCU, documentos oficiais e a transcrição de seu lançamento. Emergiram seis temas: confiança, transparência e controle, governança e sustentabilidade, habilidades e treinamento, serviços públicos e o cidadão, e inovação. Esses temas foram organizados em um modelo processual de transformação composto por três etapas: infraestrutura facilitadora, transformação do setor público e impactos sociais. A discussão relaciona a RBB aos paradigmas da New Public Management (NPM) e da New Trustless Public Governance (NPG), propondo a New Trustless Public Governance (NPTG), que descreve o blockchain como uma máquina de confiança. Os resultados indicam que a RBB promove transparência e controle por meio de governança compartilhada, dependendo da maturidade digital, capacidade institucional e prontidão para inovação.

Palavras-chave: corrupção, blockchain, rede blockchain Brasil, Brasil.

Blockchain y control de la corrupción: el caso de la Rede Blockchain Brasil

Resumen

Este artículo analiza cómo la tecnología blockchain puede mitigar la corrupción en el sector público brasileño, centrándose en la Rede Brasil Blockchain (RBB), una iniciativa del TCU y el BNDES. Utilizando la RBB como caso de estudio, efectuamos un análisis temático basado en decisiones del TCU, documentos oficiales y la transcripción de su lanzamiento. Surgieron seis temas: confianza, transparencia y control, gobernanza y sostenibilidad, habilidades y capacitación, servicios públicos y ciudadanía, e innovación. Estos temas se organizaron en un modelo de proceso de transformación de tres etapas: infraestructura

habilitadora, transformación del sector público e impacto social. El análisis relaciona la RBB con los paradigmas de la New Public Management (NGP) y la New Trustless Public Governance (NGP), proponiendo la New Trustless Public Governance (NGTP), que describe la blockchain como una máquina de confianza. Los resultados indican que la RBB promueve la transparencia y el control a través de la gobernanza compartida, en función de la madurez digital, la capacidad institucional y la preparación para la innovación.

Palabras clave: corrupción, blockchain, red blockchain Brasil, Brasil.

1. INTRODUCTION

Policymakers require low-latency data to effectively implement anti-corruption measures. Advances in hardware, software, and connectivity enable rapid data acquisition and processing, supporting timely prevention and accountability efforts in the public sector.

Security, traceability, and transparency increase corruption control costs in public contracts, but mandatory disclosure can slow efficient, transparent data delivery. Advancements in information and data technologies are imperative to address the escalating demand for data driven by evolving social and regulatory frameworks.

Although oversight processes are generally straightforward, recent health and climate crises, anticipated to increase in frequency, have created systemic vulnerabilities that facilitate corruption within the public sector. Crises such as the COVID-19 pandemic and the 2024 environmental disaster in Porto Alegre, Brazil, have exposed vulnerabilities in public procurement, where expedited procedures bypassed standard safeguards, thereby increasing corruption risks. These events underscore the imperative for robust oversight mechanisms, particularly when conventional anti-corruption controls are weakened (Lodoño & Milhorance, 2021; Rose-Ackerman, 2021).

Blockchain provides immutable, distributed, and auditable records to enhance transparency and accountability. In Brazil, the Brazilian Blockchain Network (Rede Brasil Blockchain, RBB—it should be noted that, for Brazilian institutions, we use acronyms based on their names in Brazilian Portuguese), a partnership between the National Audit Court (*Tribunal de Contas da União*, TCU) and the National Development Bank (*Banco Nacional*

de Desenvolvimento Econômico e Social, BNDES), aims to improve accountability in managing public budgets, contracts, and transactions.

This paper examines the RBB as an instrumental case study of how blockchain is being mobilized in the Brazilian public sector in relation to transparency, accountability, and anti-corruption. Based on secondary data and thematic analysis, the study identifies six themes: trust; sustainability and governance; transparency and control; promoting public innovation; skills and training; and public services and the citizen. These themes are organized into a three-stage procedural model: enabling infrastructure, public sector transformation, and broader social impacts.

The findings indicate that the RBB's anti-corruption potential does not derive automatically from the technological infrastructure itself. Rather, it depends on institutional capacity, digital maturity, governance arrangements, and public-sector capabilities. The discussion relates these findings to New Public Management and New Public Governance, while proposing New Public Trustless Governance as a third movement in which trust is expected to be relocated from individuals and institutions to algorithmic infrastructures, consensus mechanisms, and smart contracts.

The paper is structured as follows. First, we review the literature on digital government, transparency, and blockchain applications in the public sector. Second, we examine the institutional role of the TCU in Brazil's accountability system. Third, we present the methodology and the RBB case. Fourth, we analyze the empirical material and develop the procedural model. Finally, we discuss the case in relation to public administration models, hypertransparency, and smart contracts, before outlining the conclusions and future research agenda.

2. LITERATURE REVIEW

This section builds the analytical argument in three steps: first, we examine digital government and transparency as conditions for corruption control; second, we introduce blockchain as a technological infrastructure that may reshape these dynamics; third, we review how blockchain has been linked to transparency and corruption control in the literature.

2.1. Digital government, Transparency and Corruption

The term digital government evolves from electronic government, representing a shift beyond digital tools to transform operations, culture, and public service delivery (Nam, 2018).

The evolution of digital government reflects shifts in both technological capabilities and public administration paradigms. In the 1960s and 1970s, digitalization efforts prioritized internal efficiency through the adoption of management and data processing systems (Caudle et al., 1991).

Under the New Public Management (NPM) paradigm of the 1980s and 1990s, which emphasized efficiency, transparency, and accountability, governments advanced the development of online service portals (Hood, 1991). Since the 2000s, governance has increasingly emphasized digital strategies to foster inclusion and citizen engagement (Dunleavy & Margetts, 2013), and contemporary digital government is citizen-centered and leverages technologies such as Big Data and AI (Guo et al., 2021).

Within this broader transformation, transparency emerges as mechanism linking digital government to corruption control. Corrupt practices can be reduced in transparent governments, since transparency increases the risk of detection and punishment (Rose-Ackerman, 1999). Transparency enables citizen oversight, fostering accountability. While democracies mandate openness through freedom of information laws, authoritarian regimes restrict information flow (Fox, 2007).

Government transparency entails providing public access to data, fostering accountability, and encouraging citizen participation in policymaking. Technology and digital platforms enable inclusive engagement, while integrative transparency can reshape the policy cycle from problem definition to evaluation (Brunswicker et al., 2019; Ferraz & Finan, 2011; Meijer et al., 2012).

At the same time, transparency is not an inherently beneficial or linear mechanism. As Heald (2022) argues, its effects are contingent and may vary depending on context, with excessive transparency potentially reinforcing surveillance, altering power relations, and generating unintended behavioral responses. These limitations highlight that the effects of

transparency also dependent on the broader conditions under which digital government initiatives are implemented.

Digital government maturity reflects the extent of technology integration in public administration, progressing from basic digitization to full transformation driven by real-time data and interaction. Nam (2018) finds that digital government maturity can reduce corruption, though its effectiveness is moderated by national culture, particularly in societies with high power inequality. Cultural and power dynamics constrain digital government's anti-corruption impact, making technology adoption alone insufficient.

Blockchain offers a complementary solution by enhancing transparency and traceability, particularly in contexts of power asymmetry (Nam, 2018; Narayanan et al., 2016). However, as will be discussed based on the RBB case, blockchain-based systems may also give rise to hypertransparency and require high levels of institutional and digital government maturity.

2.2. Blockchain technology

Blockchain, a form of distributed ledger technology, enhances transparency by recording transactions in a secure, immutable, and auditable manner. Unlike traditional databases, it is decentralized and maintained by a network of geographically distributed computers (nodes). Each blockchain block holds verified transactions cryptographically linked to the previous, creating a secure chain (Zheng et al., 2017).

This cryptography, which links the blocks to each other, is called a hash. Hashes are algorithmic sequences that link and uniquely identify blockchain blocks, ensuring data integrity and authenticity. Any data alteration changes the hash, alerting the network to potential tampering (Narayanan et al., 2016). Additionally, each distributed node stores a full ledger copy and validates new transactions before they are added to the network.

Blockchain relies on distributed consensus for validation. While Proof of Work (PoW) ensures security through computational effort, it is energy-intensive, Proof of Stake (PoS) offers a more efficient alternative by leveraging asset ownership to validate transactions. Zero Knowledge Proofs (ZKPs) enable verification of information without disclosing underlying data, enhancing privacy and confidentiality in blockchain transactions.

For instance, RBB utilizes the Proof of Authority (PoA) consensus model, where validators are selected based on their identity and reputation. Public disclosure of validator identities fosters accountability and incentivizes reliable network behavior. Thus, identity and reputation act as guarantees of trustworthy operation, ensuring stability and trust in the system. Therefore, unlike PoW, PoA does not rely on data mining and is therefore more environmentally sustainable.

Blockchain ensures secure and immutable records through cryptographic hashing and consensus mechanisms. Transactions are digitally signed and once validated, become tamper-proof without network consensus, enabling permanent, auditable data (Narayanan et al., 2016). As blockchain operates through a decentralized network, it reduces single-point failure risks and enhances data integrity through consensus-based validation.

Blockchain networks are categorized as public, private, or hybrid. Public systems (e.g., Bitcoin, Ethereum) allow open participation, while private blockchains restrict access; hybrid models combine both for flexible governance. Networks may also be permissioned or permissionless (Zheng et al., 2017). RBB exemplifies a permissioned public system in which validator nodes are managed by sponsors (TCU and BNDES) through a distributed consensus mechanism.

Finally, blockchain networks support smart contracts, which automatically execute when predefined conditions in a transaction are met. As they are triggered automatically these contracts eliminate the need for intermediaries, which reduces transaction costs while increasing the efficiency and security of the transactions. For these reasons, Souza et al. (2018) argue that smart contracts can reduce corruption by being transparent, self-executing, publicly accessible, and tamper-proof, thereby increasing trust and reducing information asymmetry. Additionally, smart contracts foster trust by preventing tampering and reducing information asymmetry, while their self-executing nature lowers costs and mitigates risks of corruption. For example, RBB is built on Hyperledger Besu, an Ethereum-compatible platform that enables smart contract reuse, thereby broadening its developer base and fostering innovation.

2.3. Uses of blockchain technology in government

Based on our literature review, we classify Blockchain research in public administration on four themes: case studies, technical architectures, adoption barriers and recommendations, and connections to New Public Governance (NPG), through which issues of transparency and corruption control are addressed in different ways.

Case studies show blockchain's potential in public administration: Estonia uses it to secure records and build trust (Jalakas, 2018), while Georgia applies it to public contracts, enhancing transparency, reducing fraud, and improving efficiency (Berryhill et al., 2018).

Beyond case studies, research also addresses governance models and architectures for blockchain in the public sector. Tan et al. (2022) outline decisions guiding governance from micro to macro levels, such as consensus mechanisms. Belchior et al. (2020) propose a four-layer architecture to support audits. Ibrahimy et al. (2024) examined 45 studies on blockchain governance models. They identified seven core models, with procurement, document verification, and electronic voting as the most effective for enhancing transparency and combating corruption in the public sector.

A third research stream explores barriers to blockchain adoption in the public sector, highlighting resistance to change, limited expertise, and privacy concerns, and suggesting solutions such as public-private partnerships and staff training (Ølnes et al., 2017). Additionally, Zheng et al. (2017) emphasize the technological and regulatory challenges that must be addressed for successful implementation.

A fourth research line links blockchain to New Public Governance (NPG), which contrasts with New Public Management (NPM) by prioritizing multi-actor collaboration in public service. In this context, blockchain enhances integrity and transparency among stakeholders (Hermany & Melo, 2022).

Similarly, Brinkmann (2021) suggests blockchain may enable process and role redesign in NPG, minimizing intermediaries. While NPG aligns with blockchain at the tactical level, strategic governance must be refined to resolve potential decision-making conflicts.

Despite this growing body of work, existing studies remain largely descriptive and lack process-oriented analyses of how blockchain initiatives unfold within specific

institutional contexts. This paper addresses this gap through the case of RBB, which will be explained in section 5.

3. BRAZIL'S FEDERAL COURT OF ACCOUNTS AND CORRUPTION CONTROL

3.1. State accountability offices and controlling corruption

Federal courts of accounts and general accountability offices play a key role in many countries by auditing financial and operational aspects of public administration, fostering transparency, combating corruption, and ensuring accountability (Bovens, 2007).

Oversight bodies enhance trust through audits of compliance, efficiency, and policy outcomes (Hood, 1991). Digital tools, such as integrated financial systems and open data platforms, address fragmented information by consolidating departmental data (Bannister & Connolly, 2011). Nevertheless, political and organizational resistance persists, as audits may expose misconduct. Transparency initiatives, such as open data, help mitigate this resistance and foster ethical governance (Fox, 2007).

Courts of accounts face challenges in processing large and diverse datasets. Big data and AI enhance analytical capacity, enabling predictive models to detect anomalies and prioritize high-risk audits. The Brazilian TCU applies these techniques to monitor procurement and identify potential fraud.

Although technology strengthens court oversight, digital government implementation faces barriers such as high costs, complex infrastructure, and the need for secure systems and skilled personnel (Janssen et al., 2012). On the other hand, audit institutions struggle with recruitment and training demands, while digitalization increases cybersecurity risks, requiring robust data protection protocols (Bannister & Connolly, 2011).

3.2. Federal Court of Accounts

Democratic governance depends on strong institutions and active social capital to ensure proper management of public assets. Horizontal and vertical accountability enable citizens to demand sound policies and responsible use of funds. However, as O'Donnell (1998) notes, some representative democracies still face weak institutionalization of oversight agencies.

State control agencies are essential for enforcing horizontal accountability, requiring legal authority and commitment to oversee and sanction misconduct by state actors. These mechanisms involve both internal and external control institutions.

Established in 1891 during Brazil's transition to a republic, the TCU plays a key role in the country's checks and balances system by overseeing federal financial management, ensuring legal compliance and efficiency, and reporting findings to Congress and the public.

The actions of the TCU focus on ensuring that government operations are lawful, efficient, and cost-effective, thus making it part of Brazil's system of checks and balances and horizontal accountability.

According to Martins (2022), the evolution of the TCU mirrors Brazil's constitutional transformations, with its mandate expanding or contracting in response to shifts between authoritarian and democratic regimes since its establishment (TCU, 2020a).

The democratization process initiated by Brazil's 1988 Federal Constitution brought significant changes to the TCU, emphasizing transparency, accountability, and anti-corruption measures. This institutional context must be considered for understanding recent technological innovations in public oversight.

3.3. The TCU and the re-democratization of Brazil

The 1988 Constitution initiated a new stage in TCU's development, altering its leadership selection and responsibilities. It also promoted formal mechanisms for civil society engagement to strengthen oversight and enhance collaboration with emerging social actors (Filgueiras, 2018).

The 1988 Constitution redefined TCU's governance by distributing judicial appointments between the Executive and Legislature, reinforcing its autonomy and enabling effective fiscal oversight and technological innovation.

The TCU demonstrates institutional autonomy through budgetary control and a career-based workforce. Its judges hold life tenure and stability, reinforcing independence. Since democratization, the TCU has overseen the use of federal funds across subnational governments.

Democratization expanded the TCU's accessibility to complaints from citizens, parties, and civil society. Though constitutionally an auxiliary to the Legislature, its direct engagement with society reinforces its autonomy and institutional legitimacy (Abrucio & Loureiro, 2005).

Additionally, the TCU operates an ombudsperson's office as its primary citizen engagement channel, accessible via phone, electronic means, or mail, ensuring feedback on all complaints and investigations.

The TCU maintains institutional autonomy, as it is not subordinate to any government branch. Its designation as an aid agency in the 1988 Constitution signifies a duty to share information and collaborate, not subordination.

4. METODOLOGY

We adopted the instrumental case study approach (Stake, 2005) in which a particular case is used to advance understanding of a broader phenomenon. The Brazilian Blockchain Network (RBB) is examined as such a case, as it offers a revealing instance of how blockchain initiatives are mobilized in the public sector in relation to transparency, accountability, and anti-corruption.

To this end, we collected secondary data from various sources, described in Table 1, including official documents, news reports, and technical materials. These sources were selected to capture different dimensions of the initiative.

Table 1 Data Sources

#	Source	Date	Complete Reference
1	12 TCU Rulings Mentioning Blockchain	2020-2024	TCU. (2020-2024). *Rulings available in the TCU public database, 2020-2024*.
2	Cooperation Agreement between TCU and BNDES	2022	TCU. (2022). *Cooperation agreement between BNDES and TCU for the formation of the Brazilian Blockchain Network*.[1]
3	TCU Blockchain Guide	2020	TCU. (2020b). *Guide: Blockchain Technology Survey*.[2]
4	Case study on RBB in a book coordinated by IRB. (Veiga, 2023)	2023	Veiga, K. T. (2023). A Rede Blockchain Brasil e o controle das políticas públicas: contribuições e desafios para os tribunais de contas brasileiros. In E. C. P. Lima (Ed.), *Os tribunais de contas e as políticas públicas* (pp. 247-285). Fórum Conhecimento Jurídico.
5	RBB repository sources	2024	RBB. (2024). *Repositório oficial*.[3]
6	Article on the launch in Exame magazine	2024	Malar, J. P. (2024). *TCU anuncia fase piloto de base de dados pública com tecnologia blockchain: Parceria entre o Tribunal de Contas da União e o BNDES está desenvolvendo uma rede blockchain pública para o Brasil*.[4]
7	Fórum BlockchainGov	2019	Instituto de Tecnologia e Sociedade do Rio de Janeiro. (2019). *Fórum BlockchainGov: Fortalecendo a infraestrutura do setor público*.[5]
8	RBB launch event at TCU headquarters	Agosto de 2024	TCU. (2024). *Rede Blockchain Brasil: Integridade, Segurança e Inovação de Interesse Público*.[6]

Source: Elaborated by the authors.

Data were analyzed using thematic analysis following Braun and Clarke (2006), adopting an inductive approach in which codes and themes were derived from the empirical material rather than predefined. The analysis was conducted in two phases.

In phase 1, the transcript of the RBB pilot launch event (source 8) was used as the primary corpus for coding. The event brings together the network's patrons, founding and responsible actors from BNDES and TCU, including representatives in leadership and technical positions directly involved in the conception and implementation of the initiative.

[1] Avaliable at https://contas.tcu.gov.br/egestao/ObterDocumentoSisdoc?codPapelTramitavel=70782719&seAbrirDocNoBrowser=true
[2] Avaliable at https://portal.tcu.gov.br/publicacoes-institucionais/sumarios-executivos/levantamento-da-tecnologia-blockchain
[3] Avaliable at https://github.com/RBBNet/rbb/
[4] Avaliable at https://exame.com/future-of-money/tcu-anuncia-fase-piloto-de-base-de-dados-publica-com-tecnologia-blockchain/
[5] Avaliable at https://itsrio.org/pt/projetos/blockchaingov/
[6] Avaliable at https://www.youtube.com/watch?v=mV_g88PGM5A

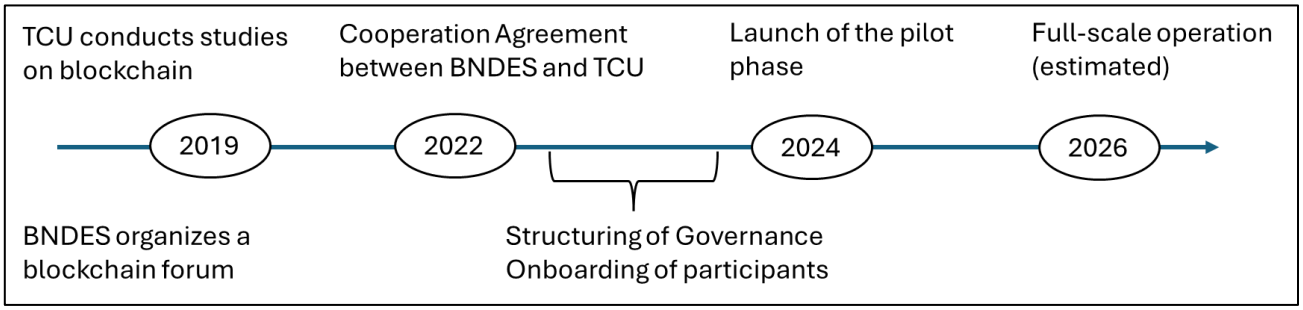
These actors, speaking from distinct institutional mandates, jointly articulate the objectives, expectations, and justifications of the RBB. This moment is analytically privileged as it concentrates, in a single interaction, the official positioning of the institutions leading the initiative. From this material, 582 in vivo codes were generated. These codes were then grouped into categories and progressively and inductively refined into six themes.

In phase 2, the six themes identified previously were reorganized into three higher-level analytical stages: enabling infrastructure, public sector transformation, and broader social impacts. The remaining materials collected (sources 1 to 7) were used in both phases to contextualize the case, support interpretation, and provide historical and institutional grounding for the themes and their aggregation into a procedural model.

5. THE CASE: THE BRAZILIAN BLOCKCHAIN NETWORK

Since some technical aspects of RBB have already been briefly described in blockchain review section, we now present the initial steps from its creation to the current stage, which is pilot testing the network, according to timeline in Figure 1.

Figure 1 RBB´s timeline



Source: Adapted from TCU (2024).

5.1. First Steps: TCU's Interest in Blockchain Technology

In 2019, the TCU initiated an investigation (TC 031.044/2019-0) into blockchain use in the public sector. Ruling 1613/2020 emphasized the need to assess risks, challenges, and success factors, and mandated the dissemination of feasibility studies to train managers on the technology's implications (TCU, 2020-2024).

TCU's Blockchain Adoption Guide, a key reference for public administrators, includes a decision-tree model, risk inventory, and implementation guidelines. Early studies framed blockchain as an infrastructure for public trust, transforming service auditing and execution. The guide reinforces its role in combating fraud, enhancing transparency, ensuring data integrity, and enabling auditable smart contracts (TCU, 2020b).

5.2. Partnerships and Development: The Creation of RBB

Prior to its formalization, the RBB originated from discussions held during a workshop preceding a blockchain forum in 2019, organized by BNDES and the Institute for Technology and Society (ITS), where public institutions identified challenges such as duplication of efforts, legal and technical barriers, and lack of interoperability across isolated blockchain initiatives. In response, BNDES initiated efforts to structure a shared blockchain infrastructure aimed at enabling reuse and integration across public-sector applications (RBB, 2024). The initiative subsequently evolved through interinstitutional articulation, leading to the involvement of the TCU, which contributed an institutional perspective focused on accountability and oversight (TCU, 2024). In 2022, the TCU and BNDES launched RBB through a cooperation agreement to build a shared blockchain infrastructure for the public sector, aiming to enhance trust, transparency, and traceability in public processes (TCU, 2022).

RBB's governance model is structured around distinct categories of participants with differentiated rights and responsibilities, formalized through a multi-level governance arrangement. At its core are the sponsoring members (TCU and BNDES), who, as founding participants, hold enhanced decision-making powers, including veto and tie-breaking authority. Associated members are part of the voting body and may assume active roles in

the network's operation, such as validating transactions and participating in consensus mechanisms, while also engaging in deliberative processes. In contrast, partner members can submit transactions and propose initiatives but do not hold voting rights within the governance structure (TCU, 2022).

5.3. Test Phase: The Implementation of RBB

On August 22, 2024, the RBB pilot phase was launched, consolidating the technical infrastructure and promoting testing in controlled scenarios. The pilot confirmed feasibility, enabling tests of data management, digital identity, and resource tracking, while shared infrastructure reduces costs and redundant networks. RBB's governance is decentralized, involving public and private entities across government levels to ensure institutional diversity (Malar 2024, TCU, 2024).

As noted earlier, RBB employs Hyperledger Besu, an Ethereum-compatible platform enabling smart contract reuse, and uses Proof-of-Authority to reduce energy consumption. Public node access promotes transparency and trust by providing direct data access (TCU, 2024).

Table 2 presents a summary of possible use cases in which participants will test the RBB. The testing phase will evaluate infrastructure, aiming for the whole operation by 2026 under an evolving decentralized governance model (TCU, 2024).

Table 2 Use cases

Participants	Roles	Use Cases
Dataprev (*Empresa de Tecnologia e Informações da Previdência* / Social Security Information and Technology Company)	Management of social security and welfare benefits systems and data.	Development of decentralized digital identities for beneficiaries, with reliable authentication and data protection.
Prodemge (*Companhia de Tecnologia da Informação do Estado de Minas Gerais* / Information Technology Company of the State of Minas Gerais)	Provision of technological solutions for agencies in the state of Minas Gerais.	Traceability of state administrative contracts, enabling real-time auditing and greater social control.
PUC-Rio (*Pontifícia Universidade Católica do Rio de Janeiro* / Pontifical Catholic University of Rio de Janeiro)	Academic research and technological innovation, with experience in blockchain.	Development of experimental blockchain solutions, including smart contracts for administrative processes.

SERPRO (*Serviço Federal de Processamento de Dados* / Federal Data Processing Service)	IT solutions server for the federal government.	Digital notarization of public documents, offering decentralized and secure validation.
Secretaria de Transparência do Maranhão (State Secretariat for Transparency and Control of Maranhão)	Promoting transparency and integrity in state government actions.	Registration and monitoring of administrative contracts, with auditing open to the public.
Prefeitura de Araguaína (Tocantins) / Municipality of Araguaína (Tocantins)	Municipal management and provision of public services.	Recording and tracking of tax and service data, promoting greater transparency.
CPQD (*Centro de Pesquisa e Desenvolvimento em Telecomunicações* / Center for Research and Development in Telecommunications)	Research and development of cutting-edge technologies.	Development of frameworks and tools to facilitate the adhesion of new participants to RBB.
RNP (*Rede Nacional de Ensino e Pesquisa* / Brazilian National Research and Education Network)	Connection and support to academic and research institutions throughout Brazil.	Encourage research and teaching projects that utilize RBB as a technological foundation.

Source: Elaborated by the authors.

5.4. Data analysis: Phase 1

5.4.1. Thematic Analysis: Codes, Groups, and Themes

From patrons' statements in source 8, 146 excerpts were coded in vivo, generating 582 codes from words and phrases directly drawn from participants' texts. In order to illustrate this process, we take the theme "trust", which was derived from in vivo codes (Table 3) grouped into three categories: trust in transactions, trust in government, and citizen trust.

Table 3 Example of excerpts related to the topic of trust

"[...]the **trust machine**, because at the end of the day, blockchain at its root is this, it's you **being able to trust a process**" (Extracts from the Launch Event, 2024)
"And for all of this, the Blockchain Network is an initiative that not only promotes innovation or technological evolution, but also strengthens **citizen trust**, as I said, in **public institutions**.**"** (Extracts from the Launch Event, 2024)
"Because this is what brings trust, this is what brings the citizen back to **trusting the State**, the States, this we can put in the plural" (Extracts from the Launch Event, 2024)
"And that is the main value of this technology, **bringing confidence"** (Extracts from the Launch Event, 2024)
"And trust, the so-called **trustless trust**, the citizen will be able to **trust** what is happening [**trust transactions**] at RBB, [**trust**] the processes that are being carried out at RBB, in the [**trust**] smart contracts that were implemented at RBB" (Extracts from the Launch Event, 2024)

Source: Elaborated by the authors.

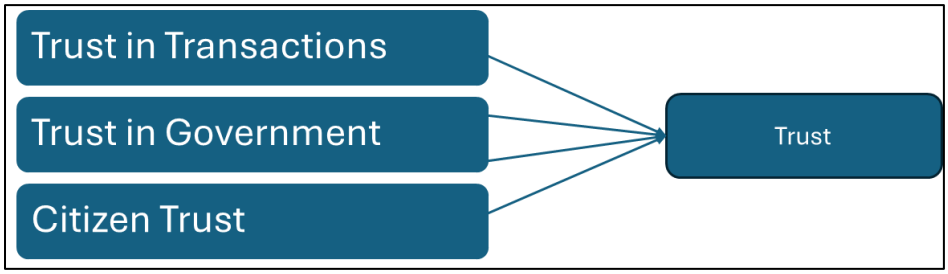
Thus, after analyzing all the selected excerpts, performing in vivo coding, and grouping them into categories, six themes emerged: Trust, Sustainability and Governance, Transparency and Control, Promoting Public Innovation, Skills and Training, and Public Services and the Citizen.

5.4.2. Description of the topics inductively raised

Trust (Figure 2): Trust is foundational to RBB, with patrons emphasizing that its technological features—such as immutable data blocks, smart contracts, and hashing—alongside decentralized validation mechanisms, are key to fostering confidence in the system, its transactions, and its mediated processes.

This trust in transactions would enhance the perception of integrity and accountability in administrative processes, thereby serving as a mechanism to rebuild credibility in public institutions and the government (trust in government), ultimately increasing citizen trust in general.

Figure 2 Trust



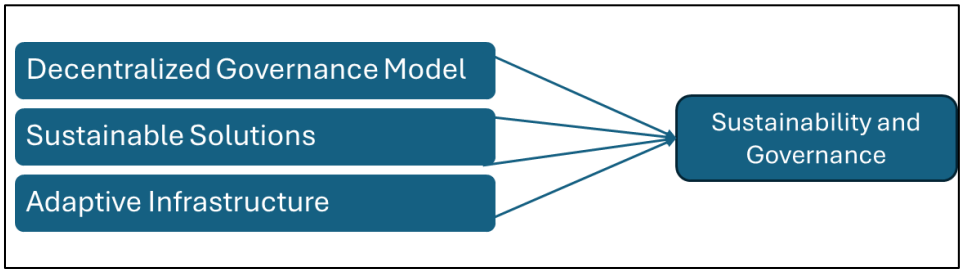
Source: Elaborated by the authors.

Sustainability and Governance (Figure 3): RBB's governance is characterized by decentralization and collaboration, involving multiple independent participants, including representatives from different government levels.

Partner and associate institutions participate in network governance through decision-making meetings, voting, and ensuring information accuracy via a consensus mechanism, as defined in the cooperation agreement and membership documents.

The agreement establishes roles for adaptive governance and network evolution. Its decentralized, authority-based validation model avoids mining, ensuring low energy use and environmental sustainability.

Figure 3 Sustainability and Governance

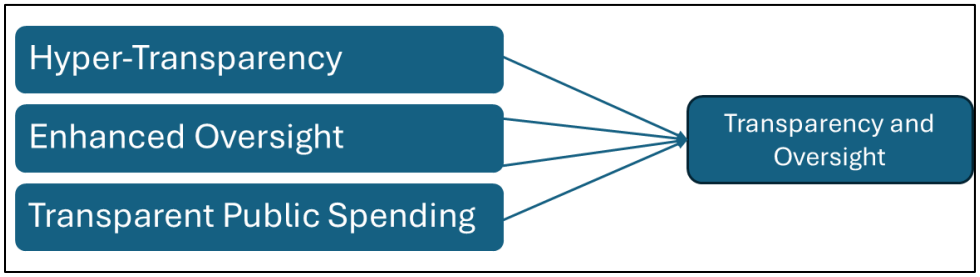


Source: Elaborated by the authors.

Transparency and Control (Figure 4): The network is public and accessible for oversight by any node participant, requiring no additional authorization beyond joining as a partner or associate.

Public record validation delivers what sponsors term “unprecedented transparency,” rendering the network hypertransparent. Ensuring transparency in public spending and auditor confidence in the authenticity of records strengthens the auditing process.

Figure 4 Transparency and Control

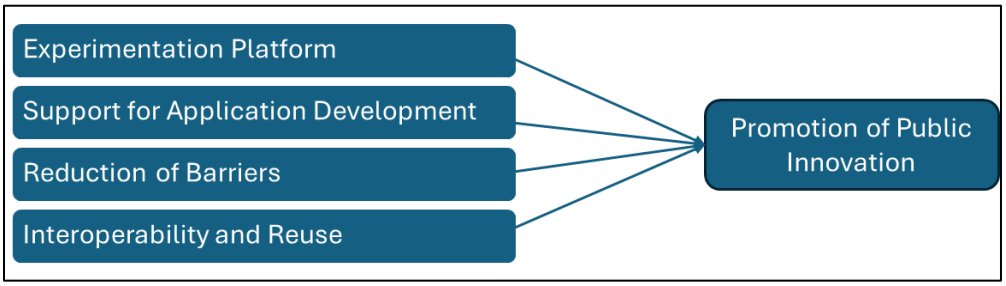


Source: Elaborated by the authors.

Promoting Public Innovation (Figure 5): RBB serves as an enabling infrastructure for public innovation by lowering technical and economic barriers, allowing public entities to experiment and develop applications of public interest without building their own infrastructure.

RBB addresses the fragmentation highlighted by BlockchainGov, where separate blockchain networks for each government initiative led to duplication, higher costs, and lack of interoperability.

Figure 5 Promoting Public Innovation

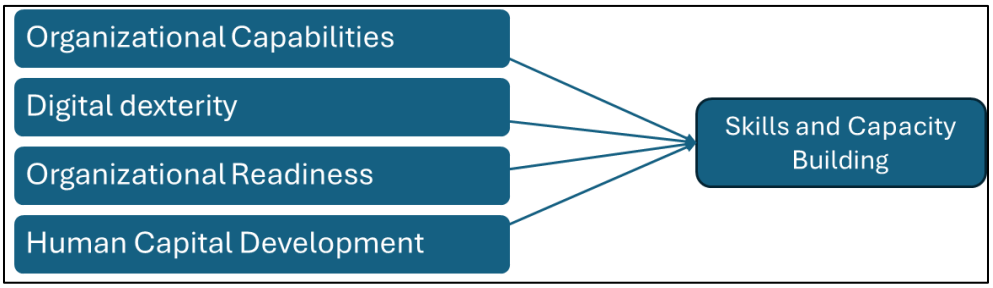


Source: Elaborated by the authors.

Skills and Training (Figure 6): Effective RBB adoption requires technical and organizational capabilities to ensure readiness for delivering innovative public services.

Speakers also highlight the importance of developing digital dexterity and human capital to ensure readiness, noting disparities in digital government maturity across states and municipalities.

Figure 6 Skills and Training

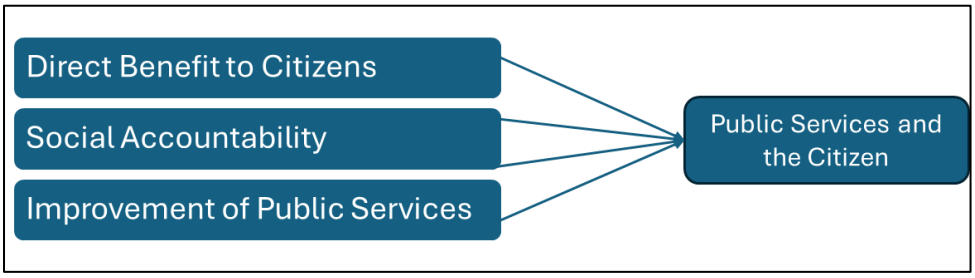


Source: Elaborated by the authors.

Public Services and the Citizen (Figure 7): The Sponsors stress RBB's role in improving public service delivery, highlighting its potential for solutions in healthcare, education, and public safety.

One possible use case cited is the management of vaccination records. Reliable, transparent, and immutable data can also be used and processed to improve services. Another point is that the network's transparency expands the possibilities for social control (social accountability).

Figure 7 Public Services and the citizen



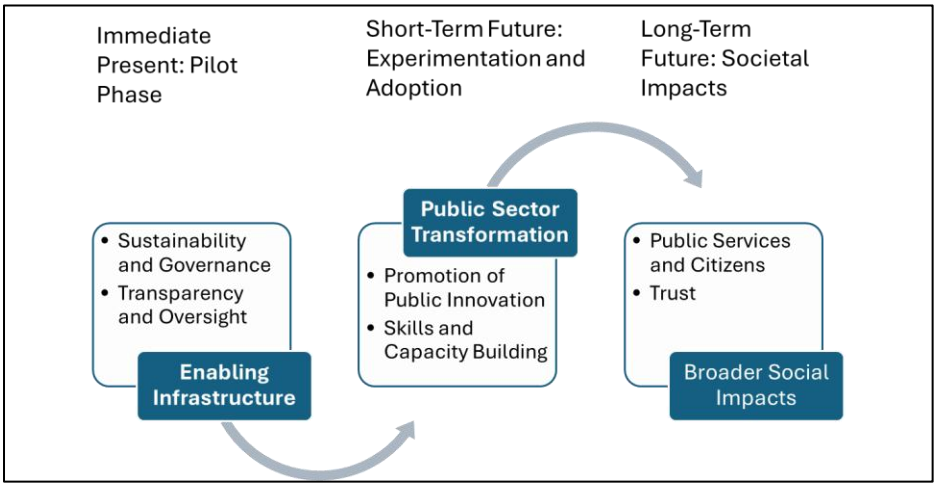
Source: Elaborated by the authors.

5.5. Data analysis: Phase 2

5.5.1. Creating steps in a procedural model

In the second phase of the analysis, the six themes raised in the previous phase were grouped into three primary stages, reflecting the logical flow of discussions on RBB's societal impacts: (a) enabling infrastructure, (b) public sector transformation, and (c) broader social impacts, as summarized in Figure 8.

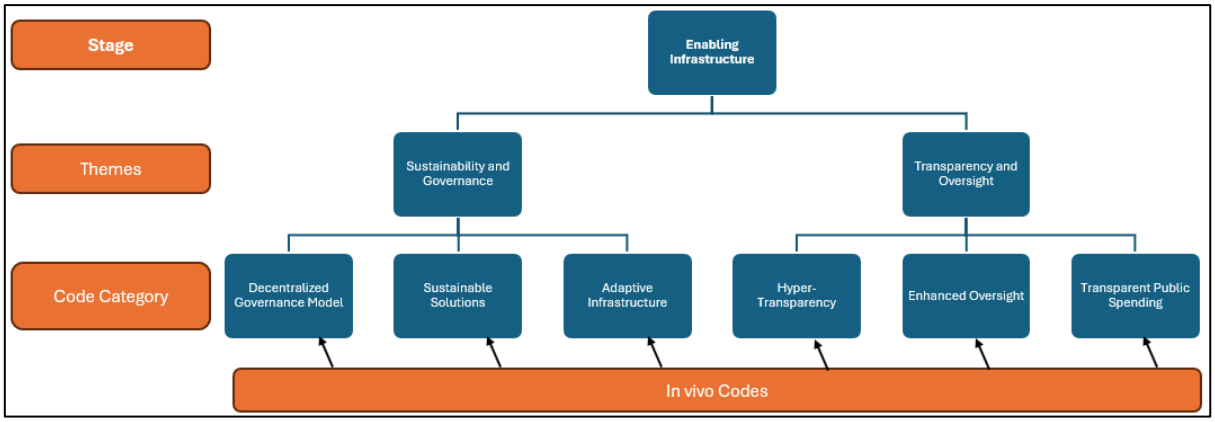
Figure 8 The three stages of the procedural model



Source: Elaborated by the authors.

Enabling Infrastructure: This stage brings together the structural elements that make RBB possible and functional. It encompasses the development of an adaptable technological infrastructure, a decentralized governance model, and transparent and effective control mechanisms. Figure 9 summarizes this stage.

Figure 9 Enabling Infrastructure

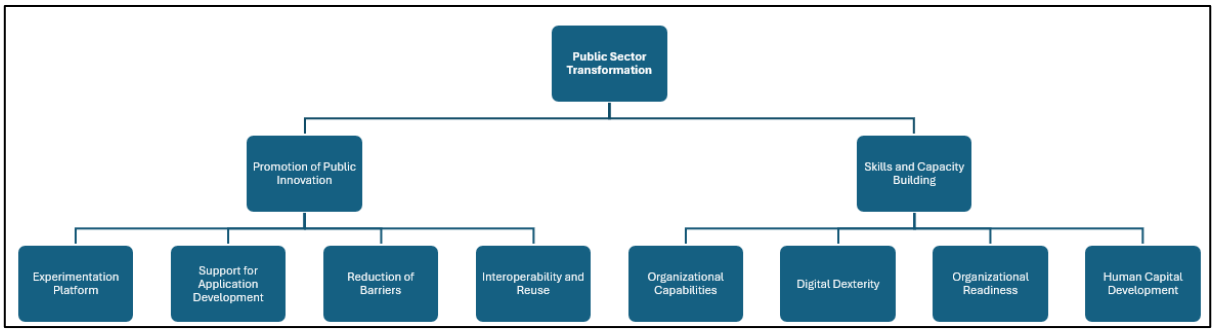


Source: Elaborated by the authors.

Figure 9 illustrates the analytical process, from in vivo codes to categories, themes, and higher-level stages, from which the subsequent figures can be interpreted, as they follow the same hierarchical organization.

Public Sector Transformation (Figure 10): This stage examines RBB's transformative role in the public sector, highlighting its dual function as both an innovation enabler and a system that relies on state capacity and organizational readiness. Key themes include fostering innovation and skills development, as shown in Figure 9.

Figure 10 Public Sector Transformation

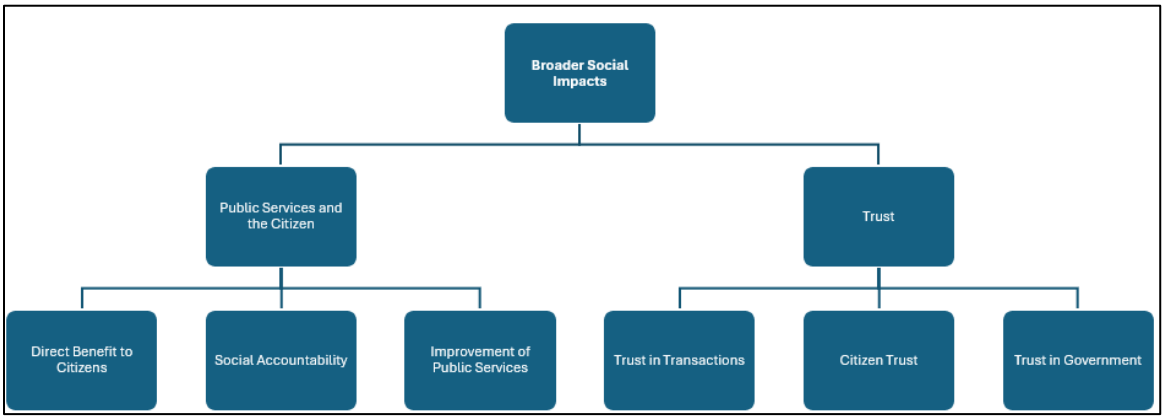


Source: Elaborated by the authors.

Broader Social Impacts: This stage examines the potential effects of RBB adoption on public service efficiency and citizen welfare, emphasizing its role in enhancing social

control and improving essential services such as health, education, and security, while fostering trust in governance (as shown in Figure 11).

Figure 11 Broader Social Impacts



Source: Elaborated by the authors.

The procedural model developed here indicates that none of the potential benefits mapped can be automatically attributed to the mere existence and launch of the RBB, since the transformation stage is still necessary.

This intermediate stage is critical, requiring technical and organizational capabilities and government readiness to develop network-based solutions. With the pilot phase underway, the transformation is expected in the short to medium term.

The potential impacts, in this sense, would be on the long-term horizon. The procedural model is illustrated in Figure 8. Next, we move on to the discussion that arises from this presentation and analysis of the data.

6. DISCUSSION 1: RBB AND PUBLIC ADMINITRATION MODELS

The procedural model reflects RBB's alignment with two public administration paradigms: NPM and NPG. From an NPM perspective, it emphasizes efficiency and transparency as core principles.

NPM emphasizes resource optimization and technological adoption to enhance accountability (Hood, 1991). RBB appears to reduce costs and enable real-time tracking of

public transactions. However, digital government success depends on technological and organizational maturity (Nam, 2018), and for RBB, limited training and readiness for blockchain integration, captured under "competencies and capabilities", remain key challenges.

> We were also discussing the double challenge of the public sector, with a shortage of qualified human resources [...] we need to generate state skills so we can work on innovations (IT Superintendent of BNDES, RBB Launch Event, 2024).

The absence of these conditions can compromise the ability of governments and institutions to implement solutions that run on the RBB, especially in contexts where digital maturity is still in its early stages of development.

Administrative capacity and institutional readiness are critical for digital technologies to curb corruption (Arayankalam et al., 2020). A recent CGU audit found municipalities lack resources and transparency tools, raising concerns about RBB's potential role and the readiness required amid limited infrastructure.

From a New Public Governance (NPG) perspective, RBB functions as a collaborative space integrating diverse actors, reflecting Dunleavy and Margetts (2015) emphasis on networked governance. Its multi-stakeholder design operationalizes NPG principles by fostering cross-sector collaboration and sustaining innovation through shared governance.

A key challenge is establishing strategic regulation that balances autonomy with coordination. As Brinkmann (2021) notes, effective network governance requires stakeholder alignment to prevent conflicts. In RBB, this issue arose during the initial phase, when the cooperation agreement and shared governance elements were defined.

> [...] When we talk about building a network, people immediately think of infrastructure, but that is not the case. The first layer you have to build, especially if you're not a government, is a legal layer. You have to be able to work together, so the legal layer is important (Systems Analyst at BNDES, RBB Launch Event, 2024).

While Ølnes et al. (2017) advocate private-sector partnerships to address technical gaps and resistance to change, such reliance risks creating asymmetrical power dynamics—an important consideration for RBB and its applications.

> There is no partnership between the public and private sectors where there is a relationship of dependence, of knowledge. The public sector must know a symbiotic, non-harmful, and productive partnership (IT Superintendent of BNDES, RBB Launch Event, 2024).

While RBB embodies NPG principles of collaboration and inclusion, its success depends on shared governance and internalizing technical expertise within the public sector. Without these measures, power asymmetries may persist, undermining its integrative potential.

A third perspective derived inductively from the RBB case, in which patrons frame RBB as an innovation that improves control, positioning it as a trust machine that mediates interactions between the government and society, thereby reducing reliance on personal or institutional trust. Trust in technology, enabled by smart contracts, is proposed as a basis for redefining governmental trust, removing dependence on individuals or institutions. We refer to this third movement as New Public Trustless Governance (NPTG), and the excerpt below exemplifies this vision.

> And trust, the so-called trustless trust, will enable the citizen to trust what is happening at RBB, in the processes being carried out at RBB, and in the smart contracts implemented at RBB, without needing to trust anyone in particular [...]. That is the beauty of it (Systems Analyst at BNDES, RBB Launch Event, 2024).

While NPTG shares with NPG an emphasis on multi-actor collaboration (Dunleavy & Margetts, 2015), it departs from it by relocating the locus of trust from social and institutional arrangements to algorithmic infrastructures and consensus mechanisms. In this sense, rather than coordinating actors through negotiated governance, NPTG envisions governance mediated by code, where trust is embedded in technical systems rather than

interpersonal or institutional relations. At the same time, NPTG radicalizes key elements of NPM (Hood, 1991), such as efficiency, control, and performance monitoring, by embedding them into automated and immutable systems that reduce discretion and expand real-time oversight. This shift introduces elements of technological determinism (Dafoe, 2015), as blockchain is framed as a structuring force capable of reshaping roles, authority, and accountability in the public sector. Thus, NPTG captures both the transformative promise and the risks associated with this reconfiguration, including potential power concentration and the depoliticization of governance processes. Despite criticism, it explains how technologies gain inertia, potentially assuming structural roles that unintentionally shape decisions and constrain future choices.

Table 4 summarizes the three alignments discussed in this section.

Table 4 RBB Alignments

RBB Alignment	**Immediate Present: Pilot Phase**	**Short-Term Future: Experimentation and Adoption**	**Long-Term Future: Societal Impacts**
NPM	RBB as Technical and Operational Infrastructure	Innovate, explore new applications, and face one challenge at a time (instead of many)	A state that dares and moves forward to improve public services
NPG	RBB as an Environment and Socio-Political Space	Arena to play the game (of innovation and regulation) through partnerships and capacity building	A state that cooperates (and competes) with independence
NPTG	RBB as Trust Machine	The strategic decision (a revolution in public sector organization)	Trust in government and the state derives from the fact that society does not need to trust any single individual or institution (trustless trust)

Source: Elaborated by the authors.

.

7. DISCUSSION 2: RBB AND HYPERTRANSPARENCY

According to Rose-Ackerman (1999), transparency discourages corruption by increasing the risk of exposure and sanctions. RBB reinforces this by creating permanent, accessible public records that allow every official action to be audited.

Blockchain's hypertransparency fights corruption by making government processes visible, traceable, and auditable in real time, reducing opportunities rooted in opacity and lack of accountability.

> [About RBB] [...] this is an essential thing, promoting unprecedented transparency. And look, as a member of the network, as a control body, and as an administrative body that we manage here, we benefit significantly from the control of a network like this. Because we will have an environment where there is transparency, reliability, and oversight can be carried out (TCU Secretary of IT and Digital Evolution, Launch Event, 2024).

While RBB's hypertransparency is seen as a tool to combat corruption, it also carries risks. Heald (2006, 2022) cautions that excessive transparency may hinder government action, discourage innovation, and lead to administrative paralysis.

Furthermore, reduced discretion can hinder public administration in addressing complex, dynamic challenges, particularly during emergencies and crises. In real-time tracking systems like RBB, managers may feel compelled to rigidly follow procedures, limiting flexibility. Radical transparency can erode trust, foster a surveillance culture, increase internal tensions, and hinder collaboration and innovation.

Still discussing transparency and hypertransparency, we explore Brunswicker et al. (2019) approaches to transparency in public policy. RBB and the applications that will run on it, initially, embrace the data/access transparency approach, which focuses on access to government data to promote democracy and accountability. Despite public accessibility, node participation demands technical expertise, and dialogue transparency in policymaking remains limited, hinging on training and readiness.

8. DISCUSSION 3: RBB AND SMART CONTRACTS – EMERGENCY

In RBB, smart contracts are used as tools to automate administrative processes and ensure the integrity of transactions carried out by network participants. Souza et al. (2018)

emphasize that smart contracts promote greater transparency and efficiency by eliminating intermediaries, reducing costs, and vulnerability to fraud.

Furthermore, immutable execution conditions prevent contract changes without network consensus, reducing information asymmetry and enhancing trust. Smart contracts also automate processes prone to delays or manipulation, such as supplier payments.

Blockchain's immutability, while useful against fraud, makes correcting contract errors difficult. As Narayanan et al. (2016) note, changes require network consensus, which can be slow or impractical in critical cases.

The first impact we see here is that rigidity may cause decision-making paralysis in crisis-prone government systems. Moreover, developing and maintaining smart contracts demands advanced technical expertise, posing challenges for public agencies and auditors. Other challenges of smart contracts for public administration can be found in the literature (Farias et al., 2022).

9. CONCLUSIONS

Brazil's corruption-control challenge is one of mechanisms, not motivation—unlike lower-income states constrained by enforcement resources or high-income efforts that are narrowly sector-specific (Sarker et al., 2021; Zhang et al., 2023). Its priority is monitoring public and emergency spending—especially during climate disasters, whose heightened risk of corruption demands just-in-time transparency and effective control.

Blockchain has emerged as a key driver of digital transformation in public administration, offering enhanced transparency, efficiency, and collaboration. RBB exemplifies this shift by strategically aligning with the New Public Management (NPM) and New Public Governance (NPG) paradigms. Its implementation reflects both the promise and the challenges of integrating emerging technologies into public sector reform.

Aligned with NPM, RBB seeks to enhance government accountability by improving administrative efficiency and resource optimization (Hood, 1991). RBB uses automation and real-time tracking to cut costs and enhance anti-corruption efforts. Its success depends on institutional and technological capacity. As Nam (2018) notes, digital governance demands

specialized skills and infrastructure, resources still limited in Brazil, as BNDES acknowledged during its 2024 launch.

While RBB holds promise for improving transparency and control, its effectiveness depends on the maturity of its institutions and technology. Technology alone is insufficient to address structural challenges, despite frequent overestimations of its capabilities.

The implementation of RBB is hindered in less developed regions due to the absence of basic transparency tools and digital infrastructure. Additionally, the TCU has acknowledged the need for institutional modernization (Lustosa, 2024).

From the NPG perspective, RBB promotes collaborative public management by engaging diverse stakeholders in co-creating solutions (Dunleavy & Margetts, 2015). It fosters governance through partnerships among government, civil society, the private sector, and academia, encouraging innovation and trust-based decision-making.

RBB also aligns with New Public Trustless Governance (NPTG, a term we propose). Nevertheless, while combining classic and new models, the NPTG model raises concerns about technodeterminism and power concentration.

Conversely, implementing RBB demands strategic regulation that balances autonomy and coordination. As Brinkmann (2021) notes, networked governance works only with active stakeholder engagement and conflict prevention. In its initial phase, RBB defined shared governance and trust-building strategies essential for sustainability.

RBB's hypertransparency boosts accountability but may lead to operational issues such as paralysis, reduced discretion, and surveillance. In emergencies, it can erode trust and stifle innovation. Smart contracts enhance efficiency and integrity but are rigid, hard to fix, and require expert oversight during emergencies, for example.

From TCU's perspective, it would act as an innovator, driving the adoption of blockchain in the public sector. However, its leadership depends on coordination with other entities and overcoming technical and cultural barriers.

The RBB represents a significant innovation in Brazilian public administration, with the potential to transform management practices and promote greater transparency and collaboration. Its integration into the NPM and NPG models reveals both opportunities and challenges.

To achieve its goals, RBB requires investment in training, infrastructure, regulation, and collaboration across the public sector. Its success in fighting corruption is not guaranteed, as technology alone cannot replace governance, education, and civic engagement. Strong institutions and strategic regulation are key to unlocking its potential.

This study explored Brazil's use of blockchain for monitoring and auditing. While promising for middle and high-income countries, its costs and benefits need further study. What is not in dispute is that digitizable, remotely auditable contracts are vital for budget control and transparency.

This paper offers a descriptive policy analysis. Comparative studies across income levels are needed, as current literature lacks case studies, data, and surveys on blockchain in emergency budgeting. Defining quantitative variables is essential to assess its role in corruption control, especially in public spending.

Concerning further research, some additional points deserve particular emphasis. First, AI may complement but not replace it. Mencke et al. (2024) examined AI-based audits in Brazilian public procurement, using panel regression and AI alerts to assess impacts on contract volumes from 2019 to 2024. Findings indicate that AI significantly influences risk aversion and decision-making, suggesting a causal link between its use and behavioral changes in procurement. Accordingly, research on how AI can complement blockchain-based systems may complement the empirical research agenda.

However, many innovations that are initially effective in ensuring transparency and control ultimately prove to be ineffective due to issues related to organizational culture resistance. Future research on the implementation of the RBB and resistance to the system—aimed at identifying specific points of resistance—could therefore be particularly valuable.

Finally, this paper aims to analyze the RBB and contribute to the debate on the adoption of an emerging technology in the public sector. Although the NPTG model may be expanded in future research to examine other public management technologies—particularly regarding technodeterminism, power concentration, and the distributive effects on organizational power—such issues fall beyond the present scope of this study.

REFERENCES

Abrucio, F. L., & Loureiro, M. R. (2005). Finanças públicas, democracia e accountability. In P. Arvate & C. Biderman (Eds.), *Economia do setor público no Brasil* (pp. 75-102). Elsevier.

Arayankalam, J., Khan, A., & Krishnan, S. (2020). How to deal with corruption? Examining the roles of e-government maturity, government administrative effectiveness, and virtual social networks diffusion. *International Journal of Information Management*, *58*, 102203. https://doi.org/10.1016/j.ijinfomgt.2020.102203

Bannister, F., & Connolly, R. (2012). The trouble with transparency: A critical review of openness in e-government. *Policy & Internet*, *3*(1), 1-30. https://doi.org/10.2202/1944-2866.1076

Belchior, R., Correia, M., & Vasconcelos, A. (2020). Towards secure, decentralized, and automatic audits with blockchain. In *Proceedings of the 28th European Conference on Information Systems* (Research Paper No. 68). https://aisel.aisnet.org/ecis2020_rp/68/

Berryhill, J., Bourgery, T., & Hanson, A. (2018). *Blockchains unchained: Blockchain technology and its use in the public sector* (OECD Working Papers on Public Governance No. 28). OECD Publishing. https://doi.org/10.1787/3c32c429-en

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Brinkmann, M. (2021). The realities of blockchain-based new public governance: an explorative analysis of blockchain implementations in Europe. *Digital Government: Research and Practice*, *2*(3), 1-14. https://doi.org/10.1145/3462332

Bovens, M. (2007). Analysing and assessing accountability: A conceptual framework. *European Law Journal*, *13*(4), 447-468. https://doi.org/10.1111/j.1468-0386.2007.00378.x

Brunswicker, S., Priego, L. P., & Almirall, E. (2019). Transparency in policy making: A complexity view. *Government Information Quarterly*, *36*(3), 571-591. https://doi.org/10.1016/j.giq.2019.05.005

Caudle, S. L., Gorr, W. L., & Newcomer, K. E. (1991). Key information systems management issues for the public sector. *MIS Quarterly*, *15*(2), 171-188. https://doi.org/10.2307/249378

Dafoe, A. (2015). On technological determinism: A typology, scope conditions, and a mechanism. *Science, Technology, & Human Values*, *40*(6), 1047-1076. http://www.jstor.org/stable/43671266

Dunleavy, P., & Margetts, H. (2013). The second wave of digital-era governance: A quasi-paradigm for government on the Web. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, *371*(1987), 20120382. https://doi.org/10.1098/rsta.2012.0382

Farias, D. O., Coutinho, E. T., Monteiro, M., & Loureiro, T. C. J. (2022). Tecnologia Blockchain e auditoria. *Revista do TCU*, *150*(150), 22-48. https://revista.tcu.gov.br/ojs/index.php/RTCU/article/view/1921

Ferraz, C., & Finan, F. (2011). Electoral accountability and corruption: Evidence from the audits of local governments. *American Economic Review*, *101*(4), 1274-1311. https://www.aeaweb.org/articles?id=10.1257/aer.101.4.1274

Filgueiras, F. (2018). Burocracias do controle, controle da burocracia e accountability no Brasil. In R. Pires, G. Lotta, & V. E. Oliveira (Eds.), *Burocracia e políticas públicas no Brasil: Interseções analíticas* (pp. 355-381). Instituto de Pesquisa Econômica Aplicada; Escola Nacional de Administração Pública.

Fox, J. (2007). The uncertain relationship between transparency and accountability. *Development in Practice*, *17*(4-5), 663-671. https://doi.org/10.1080/09614520701469955

Guo, H., Liu, Y., & Nault, B. (2021). Provisioning interoperable disaster management systems: Integrated, unified, and federated approaches. *MIS Quarterly*, *45*(1), 45-82. https://doi.org/10.25300/MISQ/2020/14947

Heald, D. (2006). Varieties of transparency. In C. Hood & D. Heald (Eds.), *Transparency: The key to better governance?* (pp. 23-45). Oxford University Press.

Heald, D. (2022). The uses and abuses of transparency. In Alloa, E. (Ed.) *This Obscure Thing Called Transparency. Politics and Aesthetics of a Contemporary Metaphor* (pp. 37-66). Leuven University Press.

Hermany, R., & Melo, C. L. (2022). Blockchain no setor público local: uma estratégia de governança? *Revista Interfaces Científicas - Direito*, *9*(1), 311-324. https://periodicos.set.edu.br/direito/article/view/11172

Hood, C. (1991). A public management for all seasons?. *Public Administration*, *69*(1), 3-19. https://doi.org/10.1111/j.1467-9299.1991.tb00779.x

Ibrahimy, M. M., Norta, A., & Normak, P. (2024). Blockchain-based governance models supporting corruption-transparency: A systematic literature review. *Blockchain: Research and Applications*, *5*(2), 100186. https://doi.org/10.1016/j.bcra.2023.100186

Instituto de Tecnologia e Sociedade do Rio de Janeiro. (2019). *Fórum BlockchainGov: Fortalecendo a infraestrutura do setor público*. https://itsrio.org/pt/projetos/blockchaingov/

Jalakas, P. (2018). *Blockchain from public administration perspective: Case of Estonia*. Tallinn University of Technology.

Janssen, M., Charalabidis, Y., & Zuiderwijk, A. (2012). Benefits, adoption barriers and myths of open data and open government. *Information Systems Management*, *29*(4), 258-268. https://doi.org/10.1080/10580530.2012.716740

Londoño, E., & Milhorance, F. (2021, July 3). *Brazil vaccine scandal imperils Bolsonaro as protests spread*. https://www.nytimes.com/2021/07/03/world/americas/brazil-bolsonaro-vaccine-scandal.html

Lustosa, P. A. (2024, September 25). *TCU e a Rede Blockchain Brasil*. https://www.jota.info/opiniao-e-analise/colunas/controle-publico/tcu-e-a-rede-blockchain-brasil

Malar, J. P. (2024). *TCU anuncia fase piloto de base de dados pública com tecnologia blockchain: Parceria entre o Tribunal de Contas da União e o BNDES está desenvolvendo uma rede blockchain pública para o Brasil*. https://exame.com/future-of-money/tcu-anuncia-fase-piloto-de-base-de-dados-publica-com-tecnologia-blockchain/

Martins, A. (2022). External control and institutional drift in the First Brazilian Republic. *Revista de Administração Pública*, *56*(2), 275-290. https://doi.org/10.1590/0034-761220210305

Meijer, A., Curtin, D., & Hillebrandt, M. (2012). Open government: Connecting vision and voice. *International Review of Administrative Sciences*, *78*(1), 10-29. https://doi.org/10.1177/0020852311429533

Mencke, W., Gomes, R., & Xavier, F. (2024). Impacts of AI-based anti-corruption audits on risk aversion in decision-making: a case study of the Brazilian ALICE tool. *Global Public Policy and Governance*, *4*, 273-286. https://doi.org/10.1007/s43508-024-00098-1

Nam, T. (2018). Examining the anti-corruption effect of e-government and the moderating effect of national culture: A cross-country study. *Government Information Quarterly*, *35*(3), 273-282. https://doi.org/10.1016/j.giq.2018.01.005

Narayanan, A., Bonneau, J., Felten, E., Miller, A., & Goldfeder, S. (2016). *Bitcoin and cryptocurrency technologies: A comprehensive introduction*. Princeton University Press.

O'Donnell, G. (1998). Horizontal accountability in new democracies. *Journal of Democracy*, *9*(3), 112-126. https://www.journalofdemocracy.org/articles/horizontal-accountability-in-new-democracies/

Ølnes, S., Ubacht, J., & Janssen, M. (2017). Blockchain in government: Benefits and implications of distributed ledger technology for information sharing. *Government Information Quarterly*, *34*(3), 355-364. https://doi.org/10.1016/j.giq.2017.09.007

Rede Brasil Blockchain. (2024). *Repositório oficial*. https://github.com/RBBNet/rbb/

Rose-Ackerman, S. (1999). *Corruption and government: Causes, consequences, and reform*. Cambridge University Press.

Rose-Ackerman, S. (2021). Corruption and Covid-19. Eunomía. *Revista en Cultura de la Legalidad*, (20), 16-36. https://doi.org/10.20318/eunomia.2021.6061

Sarker, S., Henningsson, S., Jensen, T., & Hedman, J. (2021). The use of blockchain as a resource for combating corruption in global shipping: An interpretive case study. *Journal of Management Information Systems*, *38*(2), 338-373. https://doi.org/10.1080/07421222.2021.1912919

Souza, R. C., Luciano, E. M., & Wiedenhöft, G. C. (2018). The uses of the blockchain smart contracts to reduce the levels of corruption: Some preliminary thoughts. In *Proceedings of the 19th Annual International Conference on Digital Government Research: Governance in the Data Age*. https://doi.org/10.1145/3209281.3209408

Stake, R. E. (2005). Qualitative case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (3rd ed., pp. 443-466). Sage Publications.

Tan, E., Mahula, S., & Crompvoets, J. (2022). Blockchain governance in the public sector: A conceptual framework for public management. *Government Information Quarterly*, *39*(1), 101625. https://doi.org/10.1016/j.giq.2021.101625

Tribunal de Contas da União. (2020-2024). *Rulings available in the TCU public database, 2020-2024*.

Tribunal de Contas da União. (2020a). *Levantamento da tecnologia blockchain*. https://portal.tcu.gov.br/data/files/59/02/40/6E/C4854710A7AE4547E18818A8/Blockchain_sumario_executivo.pdf

Tribunal de Contas da União. (2020b). *Guide: Blockchain Technology Survey*. https://portal.tcu.gov.br/publicacoes-institucionais/sumarios-executivos/levantamento-da-tecnologia-blockchain

Tribunal de Contas da União. (2022). *Cooperation agreement between BNDES and TCU for the formation of the Brazilian Blockchain Network*.

Tribunal de Contas da União. (2024). *Rede Blockchain Brasil: Integridade, Segurança e Inovação de Interesse Público*. https://www.youtube.com/watch?v=mV_g88PGM5A

Veiga, K. T. (2023). A Rede Blockchain Brasil e o controle das políticas públicas: contribuições e desafios para os tribunais de contas brasileiros. In E. C. P. Lima (Ed.), *Os tribunais de contas e as políticas públicas* (pp. 247-285). Fórum Conhecimento Jurídico.

Zhang, M., Zhang, H., Zhang, L., Peng, X., Zhu, J. & Liu, D. (2023). Corruption, anti-corruption, and economic development. *Humanit Soc Sci Commun*, *10*(434), 1-13. https://doi.org/10.1057/s41599-023-01930-5

Zheng, Z., Xie, S., Dai, H., Chen, X., & Wang, H. (2017). An overview of blockchain technology: Architecture, consensus, and future trends. In *2017 IEEE International Congress on Big Data*. https://doi.org/10.1109/BigDataCongress.2017.85

Erica Souza Siqueira
ORCID: https://orcid.org/0000-0003-4280-6320
Ph.D. in Business Administration and Assistant Professor at the Fundacão Getulio Vargas (FGV EAESP). E-mail: erica.siqueira@fgv.br

Marcos Fernandes Gonçalves da Silva

ORCID: https://orcid.org/0000-0003-4350-9918
Ph.D. In Economics ans Assistant Professor at Fundação Getulio Vargas (FGV EAESP). E-mail: marcos.fernandes@fgv.br

Marco Antonio Carvalho Teixeira
ORCID: https://orcid.org/0000-0003-3298-8183
Ph.D. In Social Sciences ans Assistant Professor at Fundação Getulio Vargas (FGV EAESP). E-mail: marco.teixeira@fgv.br

AUTHORS' CONTRIBUTION STATEMENT

Erica S. Siqueira: Conceptualization (Equal); Investigation (Lead); Methodology (Lead); Formal analysis (Lead); Data curation (Lead); Validation (Lead); Visualization (Lead); Writing - original draft (Equal); Writing - review & editing (Equal).
Marcos Fernandes Gonçalves da Silva: Conceptualization (Equal); Investigation (Support); Validation (Support); Writing - original draft (Equal); Writing - review & editing (Equal).
Marco Antonio Carvalho Teixeira: Conceptualization (Equal).

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

RESEARCH DATA AVAILABILITY STATEMENT

The entire dataset supporting the results of this study is available upon request to the first author (Erica Siqueira: erica.siqueira@fgv.br).

AI USAGE STATEMENT

The authors used ChatGPT as a support tool during the preparation of this manuscript. It was used for language and writing support, including Portuguese-English translation when necessary, improving fluency, reducing verbosity, and clarifying sentences. The tool was also used to support data-related tasks, including assistance with the transcription of primary data, semantic search across secondary data, and the organization, consistency checking, and problematization of emerging findings. All outputs generated with AI support were critically reviewed, revised, and validated by the authors, who remain fully responsible for the content, analysis, interpretations, and conclusions presented in the manuscript.

This preprint was submitted under the following conditions:

- The authors declare that the necessary Terms of Free and Informed Consent of participants or patients in the research were obtained and are described in the manuscript, when applicable.
- The authors declare that the preparation of the manuscript followed the ethical norms of scientific communication.
- The authors declare that they are aware that they are solely responsible for the content of the preprint and that the deposit in SciELO Preprints does not mean any commitment on the part of SciELO, except its preservation and dissemination.
- The authors declare that the data, applications, and other content underlying the manuscript are referenced.
- The deposited manuscript is in PDF format.
- The authors declare that the research that originated the manuscript followed good ethical practices and that the necessary approvals from research ethics committees, when applicable, are described in the manuscript.
- The authors declare that once a manuscript is posted on the SciELO Preprints server, it can only be taken down on request to the SciELO Preprints server Editorial Secretariat, who will post a retraction notice in its place.
- The authors agree that the approved manuscript will be made available under a Creative Commons CC-BY license.
- The submitting author declares that the contributions of all authors and conflict of interest statement are included explicitly and in specific sections of the manuscript.
- The authors declare that the manuscript was not deposited and/or previously made available on another preprint server or published by a journal.
- If the manuscript is being reviewed or being prepared for publishing but not yet published by a journal, the authors declare that they have received authorization from the journal to make this deposit.
- The submitting author declares that all authors of the manuscript agree with the submission to SciELO Preprints.