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Data governance: proposal for a conceptual framework for Brazilian public administration

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Abstract: Data Governance (DG) has become a topic of outstanding importance in modern organizations, since the amount and complexity of data generated and stored has increased exponentially in recent decades. In this context, an effective GD becomes essential to guarantee the quality, reliability and security of information. This dissertation, through a literature review and research methodologies: content analysis and document analysis, identified 55 DG mechanisms in the literature review and sought evidence of their application in a sample of Government Constitutive Acts. For the selection of the sample, a survey was carried out on the World Wide Web in January 2023, where 12 documents were selected, 5 Normative Acts establishing policies and GD committees. As main results, it was possible to identify 167 GD mechanisms in the governmental context, yet, it was found that 76% of the mechanisms contained in the literature are present in the Constitutive Acts. Based on these mechanisms, it was possible to present a conceptual framework for Government Data Governance (GDG) applied to PSB. The GDG subordinate to public governance was represented through the mechanisms of leadership, strategy and control; the interaction between the PSB and the 167 GDG mechanisms distributed in four dimensions: Governance, Quality, Management and Compliance. It is expected that the proposed framework will serve as a reference for future research on GDG and allow both the PSB and other GFD Bodies to implement the GDG mechanisms that are most appropriate to their realities.

Key words: data governance, compliance, public governance, conceptual framework, Brazilian public administration

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INTRODUCTION

Globalization has caused significant impacts on various aspects of society. The economic changes resulting from this phenomenon boosted the flow of trade, information, technology and labor worldwide. These changes have transformed contemporary society, mainly driven by the accelerated dissemination of Information and Communication Technologies (ICT). Technologies, such as the Internet, mobile devices and social networks, have revolutionized the way people communicate, interact and conduct business around the world, creating opportunities, expanding access to information, driving innovation and facilitating collaboration on a global scale.

These advances have caused an exponential increase in the amount of data generated, from personal information shared on social networks, to records of commercial transactions and data collected by Internet of Things (IOT) devices. Zhang et al. (2022) state that, in 2018, the amount of data created, captured, copied and consumed was 33 zettabytes and the forecast for the current year, 2023, according to the Statista website, revolves around 120 zettabytes, that is, a growth of more than 250% in 5 years. This leads to a constant need for companies to think about how to deal with this increasing amount of data.

In this context, organizations are increasingly perceiving their data as a valuable asset, due to its potential to provide valuable information and insights, capable of enabling competitive advantages (Khatri and Brown 2010). Data governance (GD) emerges in this scenario as the exercise of authority over data assets, defining processes, standards, policies and technologies necessary to maintain and explore information in the organizational context (Khatri and Brown 2010; Newman and Logan 2006).

GD is recognized for materializing in a framework. Wende and Otto (2007) state that a DG must specify structure, processes and relationships that are defined by senior management to achieve its strategic objectives (Aisyah and Ruldeviyani 2018). All organizations deliberate on the use of their corporate data, whether

or not they have defined data management functions, however, those that formally adopt a GD framework are more capable of increasing performance from their data (Seiner, 2014).

A GD framework should not be seen as a "one size fits all" approach. Decision-making bodies need to be identified for each organization, and DG must be institutionalized through a formal organizational structure that fits a specific organization (Otto 2011), without forgetting its alignment with the strategic plan (Zorrilla and Yebenes 2022). Friedman and Bitterer (2006) recommend that the organization adopt a holistic approach focusing on people, processes and technologies.

Several established frameworks have been used to guide the implementation of GD in organizations. The Data Management Body of Knowledge (DAMA) frameworks; Decision Domain (Khatri and Brown 2010); Data Governance Institute (DGI) provides a comprehensive set of principles, best practices and guidelines for managing data in an organization. The set of these frameworks establishes a clear separation between the functions of governance and management and can serve as a reference for both public and private organizations. It is clear from these frameworks that organizations need to define authority, roles and responsibilities over data assets. Define the vision, mission, and governance objectives, aligning them with the organization's strategic objectives. Furthermore, supervise the strategies, policies, procedures and processes related to data management.

To achieve this, mechanisms are needed to ensure the good implementation of strategic actions related to DG. Mechanisms that include structures that connect data to the business, procedures and standards for implementing DG (Zhang et al. 2022). A mechanism is composed of processes within a system that aim to trigger or prevent a change (Bunge 2003). In the context of public governance, whose objectives include the conduct of policies and the provision of services of interest to society, the mechanisms of leadership, strategy and control are put into practice to evaluate, direct and monitor management performance (Brazil 2020).

In the public sector, GD developed from the initiative of the Government Services and Information Portal (e-Gov) in 2002, with a view to promoting equal access to public services through ICT, going through several other initiatives until its intensification with the establishment by Decree, in 2019, of the Central Data Governance Committee and the Citizen Base Registry. Both the Federal Public Administration (APF) and the Government of the Federal District (GDF) have advanced in the creation of policies, laws, standards and practices aimed at GD. With emphasis on: Federal Law on Access to Information, Open Data Policy, General Personal Data Protection Law (LGPD). For the effective implementation of these standards, it is imperative to create a well-structured GD for the governmental context in order to define decision-making authorities, roles and responsibilities.

GOVERNANCE

Governance regulates collective activities in a given context through processes that can be formal or informal (Gomes and Merchán 2017). In the corporate environment, it regulates the relationship between administrators and shareholders. In the public environment, it regulates the relationship between society and public managers, thus avoiding conflicts of interest between ownership and control.

Initially identified in the first half of the 20th century, by Berle and Means (1932), this conflict is currently known as agency conflict, it occurs as more autonomy is given to managers and less information and control is given to owners. This fact leads administrators, given their particular interests and preferences, to behave differently from that expected by owners (Jensen and Meckling 2008).

In this sense, governance proposes to deal with the rules and processes that guarantee that management will adhere to ethical standards consistent with good practices and laws (Turban and Volonino 2013). Governance is described as a system of administrative, political, economic, social, environmental and legal organization, whose objective is to guarantee the realization of desired interests.

For Moreira et al. (2017), governance, in addition to relating to administrative and organizational aspects, also encompasses the participation of other actors involved in the process. In the governmental context, the main function of governance is to achieve results that benefit the community. On the other hand, society plays an important role in monitoring compliance with established goals.

In this way, those responsible for making decisions are expected to guide their actions in line with the principles of efficiency, transparency, accountability and, above all, ethical and professional behavior. These characteristics contribute to good governance, the basis for achieving social well-being in a country.

1. Governance and management.

Governance and management are two distinct concepts. While governance is the directing function, management is characterized as the performing function. Governance is conceptualized as a mechanism aimed at leadership, strategy and control in practice to evaluate, direct and monitor management performance (Brazil 2017).

In another sense, management relates to the effectiveness and efficiency of an organization's priority actions. According to the TCU's Basic Organizational Governance Manual, its basic activities are planning, execution and control (Brazil 2020). It has functions such as implementing programs, ensuring compliance with regulations, reviewing and reporting the progress of actions, ensuring administrative efficiency, maintaining communication with stakeholders and evaluating performance.

2. Corporate Governance.

The 90s were marked by a series of financial crises that led to a reflection on regulation and greater transparency and supervision of markets (Rossetti and Andrade 2014). It was these crises that created demand for the formalization of the first global governance standards, such as the Cadbury Report in England and the Sarbanes-Oxley Act, in 2002, in the United States, as a result of scandals involving fraudulent financial statements ratified by auditing companies that caused global impacts (Brazil 2020).

In the year in question, the European Corporate Governance Institute (ECGI) was created, with the purpose of encouraging the adoption of best corporate governance practices through independent scientific research, in addition to serving as a forum for the discussion and exchange of ideas between academics, legislators and professionals, focusing on the main issues related to corporate governance (García-Ramos and Díaz 2020).

The Brazilian Institute of Corporate Governance (IBGC), the body responsible for good practices related to the topic, conceptualizes corporate governance as a system through which companies are directed, monitored and encouraged involving relationships between owners, Boards of Directors, Board of Directors and control bodies.

The principles on which corporate governance is based refer to transparency, which provides a climate of trust among employees. Equity that consists of the fair treatment of all partners and interested parties. Accountability, according to which governance agents must be accountable for their actions, assuming the consequences of their acts and omissions and, finally, the principle of corporate responsibility which relates to the duty of care and responsibility and sustainability of the organization (IBGC, 2015).

Therefore, corporate governance consists of establishing mechanisms that aim to guarantee the efficient and responsible management of companies, in order to guarantee transparency and protection of the interests of the various stakeholders involved.

3. Public Governance.

The expression "public governance" appeared in a World Bank report, dated 1989, in which the concept proposed at the time was "the exercise of political power to manage the affairs of a nation" (Brazil, 2020). This definition emerged in a context of significant fiscal crisis, which required the implementation of new political and economic models with the aim of increasing the State's efficiency.

According to Rossetti and Andrade (2014), public governance is a concept that refers to the way in which the State and its institutions are administered and controlled. It involves the establishment of practices, mechanisms and processes that promote efficiency, transparency, accountability and citizen participation in the management of public resources.

Complementing this understanding, Nardes et al. (2016) clarify that public governance refers to the ability of governments to evaluate, direct and monitor the management of their policies and services, with the aim of meeting the needs of the population. Public governance encompasses the ability of governments to ensure that strategic, tactical and operational plans capture the will of citizens.

Some indicators for assessing governance maturity recommended by the World Bank were presented by Maximiano and Nohara (2017) and refer to: 1) the extent to which the citizens of a country are able to participate in the selection of their government, as well as freedom of expression, freedom of association and freedom of the media; 2) political stability and absence of violence; 3) perceptions about the quality of the public service and the degree of its independence in relation to political pressures; 4) regulations that allow and promote the development of the private sector; 5) perceptions about the degree to which agents trust and conform to society's rules; 6) control of corruption.

In Brazil, Decree No.9,203/2017 establishes the governance policy of direct, autonomous and foundational federal public administration. According to this provision, public governance is a "set of leadership, strategy and control mechanisms put into practice to evaluate, direct and monitor management, with a view to conducting public policies and providing services of interest to society" (Distrito Federal 2019).

In the view of the Federal Court of Auditors (TCU), public governance transcends the participation of the State, as it also encompasses civil society actors as an essential part of the government process (Brazil 2020). This understanding is corroborated by the text of the Constitution of the Federative Republic of Brazil (1988), according to which it guarantees citizens participation in the government process.

In the Federal District, Decree No.39,736/2019 established public governance and compliance within the scope of Direct, Municipal and Foundational Administration. Said device conceptualizes public governance as the "set of leadership, strategy and control mechanisms aimed at evaluating, directing and monitoring management, with a view to conducting and generating results in public policies and the provision of services of interest to society" (Federal District 2019).

It can be extracted as a synthesis of the concepts presented that public governance refers to mechanisms and processes that, applied in public administration, promote greater management control, accountability and citizen participation in order to better provide services offered. to the citizen.

As a resource to support corporate and public governance, ICT aims to facilitate strategic alignment between the business and IT of organizations.

ICT GOVERNANCE

ICT governance has aroused the interest of researchers and IT professionals, notably as corporations increasingly perceive the value of ICT as an organizational asset that, as such, must be well managed and governed (ISACA 2012). Its concept addresses different types of mechanisms that seek to ensure that the ICT infrastructure is capable of promoting an organization's corporate strategy and objectives.

Organizations that are more advanced in processes related to ICT governance tend to have greater proximity between the ICT areas and the business (Nfuka and Rusu 2010). This aspect allows corporations to maximize the use of their information, adding value to the business (Brand and Boonen 2007).

Khatri and Brown (2010) differentiate ICT governance from GD. For the authors, while ICT governance relates to technology infrastructure assets such as computers, switches, servers, GD relates to information assets, the data itself, which has potential value for the company.

ICT Governance is an essential element of Corporate Governance, which implies stating that this topic is also the responsibility of the highest decision-making bodies in organizations. ICT Governance plays a key role in providing strategic guidance, promoting transparency and control in the responsible use of ICT resources. This includes managing the risks involved, with the aim of obtaining a greater return on investments in ICT, aligning with business needs (ITGI 2003). The concept of ICT governance presented by ITGI (2003) reinforces the addition of value to the business, based on investments in ICT. Information Technology Corporate Governance is an integral part of Corporate Governance and addresses the definition and implementation, in the organization, of processes, structures and relational mechanisms that enable both business personnel and IT personnel to execute their responsibilities in supporting alignment strategy and the creation of business value from IT-enabling investments.

In the same sense, the TCU understands that ICT governance must be based on the establishment of mechanisms to ensure that the use of IT adds value to the business (Brazil 2020). To be effective, the ICT governance model to be adopted must be the one that most aligns with the corporation's strategic objectives, in addition to specifying decision rights and an accountability matrix to promote the desirable attitude in the use of information and technologies. communication (Weill and Ross 2004).

These authors list the 5 main decisions about ICT that must be taken by an organization: 1) decide which principles will guide desirable behavior for both professionals and users of information technology. Principles are high-level statements of how IT should be used by the agency; 2) deciding on the IT architecture will define questions about the organization of data, applications, infrastructure based on a set of policies and technical options adopted to obtain standardization and technical and business integration; 3) decide on IT Infrastructure, which are centrally coordinated and shared IT services to provide the basis for the organization's IT capacity; 4) decide on the need for applications; 5) decide on IT investments and prioritization.

Weill and Ross (2004) classified six different types of organizational configurations for decision-making: monarchy, feudalism, duopoly and anarchy. Among these possibilities, it is worth checking, according to the decision matrix within an organization, which arrangement is suitable better meet strategic objectives.

Another important reference on the subject, ABNT establishes that IT corporate governance directs and controls the present and future use of information technology, therefore, the value added to the business must be guaranteed by senior management that uses a system governance that enables the assessment of IT needs; directing the development of IT plans and policies connected to organizational objectives as well as monitoring and evaluating performance. Therefore, the official designation by senior management of managers in charge of supporting these processes is essential.

1. What is Data Governance.

Khatri and Brown (2010) clarify that GD refers to the establishment of who holds decision rights and is held responsible for decisions about the organization's data assets. Wilbanks and Lehman (2012) corroborate this understanding by saying that GD includes clearly defined authority to create and apply policies and procedures; roles and responsibilities; capabilities to support roles and inclusion of robust data architectures.

Reinforcing the idea of accountability, Weber et al. (2009) argue that DG defines roles and assigns rules and responsibilities for each decision field. This concept aligns with that of Rosenaum (2010) in the sense of defining GD as the conceptualization and execution of responsibilities related to data.

Regarding structuring, Cheong and Chang (2007) present GD as the establishment of policies and procedures to ensure proactive and effective data management. In the same sense, Panian (2010) states that GD is defined as the processes, policies, standards, organization and technologies necessary to manage and guarantee the availability, accessibility, quality, consistency, auditability and security of data in an organization.

According to the DGI, GD is described as a process of making decisions and assigning responsibilities related to data, based on policies, standards and restrictions. The specific focus of GD may vary according to each body, and may cover areas such as data privacy, quality, access and sharing policies, among others. In this sense, it is important for organizations to define their data management needs and establish the objectives they want to achieve.

For the good practice guide, DAMA (2014) GD is characterized as the exercise of authority and control (planning, monitoring and execution) over the management of data assets.

The Ministry of Education addressed the topic of GD through its Corporate Governance and Information Technology Policy, according to which it defined GD as:

[...] the integration of methods, tools and standards that are used to maximize data availability, usability, integrity and security. It is the management of data assets understood as a set of technical and institutional actions integrated with the planning, specification and provision of the structure to receive data, with security, infrastructure and ICT development services. It comprises the following technical and institutional actions: create, acquire, classify, maintain, use, archive, recover and delete data (Brazil 2017).

All organizations make decisions about data, regardless of whether they have a formal DG role or not. Those who establish a formal Data Governance program exercise authority and control with greater intentionality. These organizations are better able to increase the value they derive from their data assets (Seiner 2014).

Thus, the concept of GD that is developed in this research is the exercise of authority and control that allows data management from the perspectives of sharing, architecture, security, quality, operation and other aspects (Brazil 2019). It should be clarified that the adoption of this definition contained in Federal Decree No.10,046, of October 2019, was carried out due to the lack of regulations capable of guiding the topic within the scope of the Federal District and guiding institutions in this direction.

The objective of GD is to ensure that data is managed appropriately, in accordance with policies and best practices (Ladley 2019). A GD program contributes to this as it proposes solutions to problems related to compliance, improves master data assurance and process transparency. In addition to the objectives presented, the reduction of legal risks can be highlighted; data security; privacy-related issues; process improvement; improving data quality (DAMA 2014; De Hert 2013).

Corroborating this understanding, Fernandes and Abreu (2014) point out the following as objectives of a DG policy: improving decision-making; mitigate operational friction; protect the needs of stakeholders; institutionalize management to deal with data-related problems; build standards, processes and methodologies that can be disseminated throughout the organization and reduce costs.

2. Principles.

Principles are beliefs to be applied every day as guidance for decision-making procedures and efforts. Data management shares common characteristics with other forms of asset management, which entails knowing what data an organization has and what value it can provide, determining how best to use data assets to achieve organizational goals. Like other management processes, they must be aligned with strategic and operational needs. This balance can best be achieved by following a set of principles that recognize important characteristics of data management and guide processes (DAMA 2014; Stumpf 2016).

Principles are fundamental guidelines based on consensus, approved and respected by the organization, which regulate the processing of data. They have a more philosophical character and establish the rules to be followed in the context of data governance. The principles of GD act as a reference to guide the actions of professionals working in this area (Barbieri 2013). According to DAMA (2014), the principles that guide data management are:

- Data as a sui generis asset: Refers to the particular characteristics of data management that differentiate it from other corporate assets;
- Value of data: Considering data as an asset necessarily implies quantifying the value of this data for the business;
- Quality data: Means ensuring that data is fit for purpose and a primary objective, that is, ensuring that it meets the quality requirements of stakeholders;
- Metadata: Metadata is the data about the data, therefore, it requires management to understand: what a given data is and what it is for;
- Plan data architecture and processes: Data is created in many places and passes through different sectors that use and reuse it. This characteristic must be coordinated in its own architecture and processes;
- Multifunctionality: Data management is multifunctional in that it requires a variety of skills and knowledge, that is, a single team cannot manage all of an organization's data;
- Maximum effectiveness: Data management must be applied throughout the organization to be as effective as possible;
- Continuous evolution: data management must constantly evolve to keep up with the way data is created, used and consumed;
- Data lifecycle: Data management practices must take its lifecycle into account;
- Management requirements: Different types of data have different characteristics, therefore, management processes must be adapted to each type of data;
- Manage risks: managing data includes managing risks associated with data;
- Relationship between DG and ICT governance: data management is deeply interconnected with ICT so that the corporation's strategic data needs must be guaranteed by ICT;
- Leadership commitment: data management involves a complex set of mechanisms that, to be effective, require sponsorship from senior management.

3. Main data governance initiatives in Brazil.

The evolution of GD in Brazil dates back to the first initiative through Resolution No.12, of November 14, 2002, which established the e-Gov Government Information and Services Portal. This initiative sought to promote equal access to public services through ICTs. This accessibility model is based on offering public services electronically, through the Internet, representing a paradigm shift in the provision of public services that were previously offered in person in physical locations, now being available in digital form and remote (Brazil 2002).

In 2004, the launch of the transparency portal stands out in this scenario. It is an online platform developed to promote transparency in the management of public resources. Its main function is to provide detailed information on government expenditures and revenues, in addition to providing data on budget execution, tenders, contracts, agreements and other relevant information (Brazil 2009).

Another significant advance in promoting government transparency was the enactment of Law No.12,527, of November 18, 2011, called the Access to Information Law, which guarantees the fundamental right of access to public information. The law establishes that all individuals or legal entities have the right to request public information from government bodies and entities, whether federal, state or municipal. Access to information includes the right to consult, obtain copies, reproduce and disseminate government documents and data (Brazil 2011).

Continuing the line of evolution of guaranteeing fundamental rights, Law No.13,709, of August 14, 2018, was published, General Law for the Protection of Personal Data (LGPD). This law aims to establish a culture of protection and privacy in the processing of personal data, aligning Brazil with international data protection standards. It enables the control of personal data by its holder, in addition to encouraging responsible and ethical practices in the use and processing of this data (Brazil 2018).

Data sharing within the scope of the APF was addressed by Decree No.10,046, of October 2019. Levels of information sharing were established. Broad sharing occurs when dealing with public data, restricted sharing occurs when dealing with information protected by confidentiality and specific sharing occurs for purposes provided for by law whose sharing will be defined by the body (Brazil 2019).

In this same device, the basic citizen registration and the Central Data Governance Committee were established. The base register aims to be a source of reference, integrated, precise and centralized on fundamental elements for the provision of services and the management of public policies. On the other hand, with the establishment of the Central Committee, the collegiate's competencies were broadly defined to deliberate on guidelines, guidelines, and data sharing (Brazil 2019).

4. Data governance frameworks.

During the literature review process, several frameworks cited by different authors were identified. Most of these frameworks were customized to meet the needs of the research in question. The frameworks identified in the literature review and described below will serve as the basis for this research.

4.1 Dama Framework. The DAMA-DMBOK Guide is a set of good Data Management practices gathered in a document structured in the form of a framework. This framework focuses on data management functions. The functions related to Data Management represent the main sectors of activity of the discipline, grouped based on common and/or specific activities for each group. The guide establishes 10 primary functions (RÊGO, 2013).

- *Data Governance* is responsible for exercising authority and supervising strategies, policies, rules, procedures, roles and activities related to data assets. It plays a central role in the framework and has influence on all other functions;
- *Data Architecture Management:* the role tasked with determining the organization's data requirements. It is also responsible for establishing and preserving the Corporate Data Architecture in line with the company's strategic objectives;
- *Data Development Management:* a function that encompasses data-related tasks during the systems development cycle. Covers activities such as Data Modeling (including data model assessments), data requirements analysis, database design, implementation and maintenance of databases;
- *Data Operation Management:* the function in charge of preserving data throughout its life cycle, from the moment it is created and/or acquired, until its final archiving or deletion, is responsible for keeping the data stored in the structures designated for this purpose;
- *Data Security Management:* the role charged with establishing and maintaining security policies and procedures with the goal of ensuring proper authentication, use, access, and auditing of data. It is responsible for defining and implementing the necessary measures to protect data;
- *Master Data and Reference Data Management:* a role responsible for defining and controlling activities to ensure consistency and availability of unique views of the company's master and reference data;

- *Data Warehousing and Business Intelligence Management:* a role responsible for establishing and overseeing processes to provide data to support decision making, typically made available in analytical applications;
- *Documentation and Content Management:* a specialized function in planning, implementing and controlling activities related to the storage, protection and access to the company's unstructured data;
- *Metadata Management:* a function responsible for managing and storing the company's metadata, in addition to facilitating different forms of access;
- *Data Quality Management:* a function responsible for managing activities related to the application of Data Quality techniques, with the aim of measuring, evaluating, improving and ensuring the quality of the organization's data.

4.2 Decision Domain Model. This framework focuses on identifying which decisions and who should make them. Authorities must be clearly established in order to be responsible for creating policies and procedures, and including robust data architectures (Wilbanks and Lehman 2012).

Khatri and Brown (2010) developed a model that presents the decision domains for Data Governance, illustrated in Table 7. Data principles direct all other decision domains. They establish the requirements and limits for the intended use of data, establishing the organization's data quality standards. The principles guide all four other domains: metadata, data access, data lifecycle.

4.3 DGI Framework. The Data Governance Institute (DGI) framework is a widely used approach to data governance in organizations. It provides a comprehensive set of guidelines and practices for effectively establishing and implementing data governance. The DGI Framework consists of six main components (Thomas 2020):

- *Strategy and Objectives:* Defines the vision, mission and objectives of data governance, aligning them with the organization's strategic objectives. This involves setting clear goals and identifying the expected benefits of data governance;
- *Organization and People:* It involves assigning clear roles and responsibilities to people involved in data governance. This includes appointing a data governance executive, committees and multidisciplinary teams to lead governance activities;
- *Processes and Procedures:* Describes the processes and procedures for data governance, such as defining policies, standards and guidelines, conducting data maturity assessments, managing risks and resolving data-related issues;
- *Metadata and Architecture:* Involves defining and managing metadata, which provides detailed information about the organization's data assets. This also includes creating and maintaining a data architecture that supports governance needs;
- *Controls and Metrics:* Establishes controls and metrics to monitor and measure data governance performance. This involves defining key performance indicators (KPIs), regular audits, monitoring compliance and progress reporting;
- *Tools and Technology:* Involves the selection and deployment of appropriate tools and technologies to support data governance. This includes solutions for metadata management, data quality, security and compliance, among other aspects.

The DGI Framework is designed to be flexible and adaptable to the specific needs of each organization. It provides a comprehensive framework to guide data governance practices and promote the realization of value from data assets by ensuring their quality, security and compliance (Thomas 2020).

The framework prescribes some questions that must be answered, namely asking about a) who; b) what; c) when; d) where e) why. The "why" should clarify why the GD program exists. The "what" answers what will be accomplished. The efforts and responsibilities involved are defined by "who". How those involved will work together to deliver value to the organization is determined by the "how". The "when" establishes the moment in which specific processes will be carried out.

CONCLUSION

This research sought to advance studies related to the topic of GDG by proposing a framework for how the GD process should occur in ASPs. Investigations on the topic highlighted negative impacts on data

management resulting from the lack of definition of authority and responsibilities in relation to data. It was observed that informal DG mechanisms harm data quality due to the lack of clear responsibilities for carrying out initiatives for this purpose. Furthermore, the lack of data quality can generate different types of losses, including the most serious ones related to decision making.

As a result, the research question was generated that sought to represent and identify the aspects that should be considered in the GDG model. As a specific objective: i) understand the stage of development of theory on GD; ii) identify the GD mechanisms present in the literature; iii) highlight in the Government Constitutive Acts, the DG mechanisms identified in the literature; iv) identify the common characteristics related to the mechanisms found in the Government Constitutive Acts; v) propose a conceptual framework for GDG aimed at ASP based on a structure of mechanisms.

It was possible to represent the mechanisms of public governance (leadership, strategy and control) influencing the GDG mechanisms with a view to evaluating, directing and monitoring the performance of data management. The GDG mechanisms were categorized into the dimensions: governance, quality, management and compliance, which were also represented in the framework.

Regarding the objective "understand the stage of development of GD theory" the objective is considered to be achieved, given that the literature review carried out provided an understanding of the issues surrounding GD, exploring how high-performance organizations benefit from it through specific mechanisms. Furthermore, in its midst, it brought a bibliometric research on the topic, carried out in the Scopus database, which addressed the performance analysis that provided information such as: the most cited sources, most cited countries, most relevant authors for the research, most cited documents, etc. Scientific mapping provided the conceptual structure of the topic, through the document co-citation network, highlighting the knowledge base on the topic.

Regarding the objective "identify the GD mechanisms present in the literature" this objective is considered achieved due to the identification of 55 distinct GD mechanisms extracted from the literature review and organized into the categories: governance, quality, management and compliance. These mechanisms served as the basis for the second phase of the research in which we sought to highlight them in the government Constitutive Acts.

Regarding the objective "highlight in the Government Constitutive Acts, the DG mechanisms identified in the literature" the objective is considered achieved due to the fact that 167 mechanisms were identified in the analysis carried out in the government Constitutive Acts. Through this research, it was identified which and how the mechanisms, present in the literature, occur in the governmental context, with this, it was possible to construct a table of GDG mechanisms, according to Appendix G, capable of guiding the implementation of a GD in ASP. From the results presented, it is possible to infer that the "defining responsibilities" mechanism is the one that stands out most at the government level with 29 reference units, highlighting the importance of ensuring that all parties involved clearly understand their functions. The main strategic objectives for GDG are topics related to the data life cycle, expansion of open data as well as the integration and sharing of public security bodies' databases, to combat crime.

It is worth highlighting that the research has limitations, since the technique used to select the sample of Constitutive Acts analyzed may not adequately represent the reality of public administration. This occurs because the documents were selected based on subjective criteria, as a result of which the results may not be generalizable to the entire public administration context.

Future work is needed to address the interoperability of security agencies' databases, seeking to better understand communication, information exchange, and the best technological approach. Along the same lines, questions arise related to this integrated approach to DG, in order to seek answers to: how to regulate access to data and risk management, taking into account not only technical aspects, but also legal and ethical aspects. Furthermore, there is a need to undertake research related to DG in emerging fields such as artificial intelligence, Internet of Things (IOT), due to the already used predictive analysis in crime prevention and the use of body cameras in vehicles and police officers to monitoring of policing activities.

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