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# **Readability of Management Reports in the Brazilian Public Sector**

## ABSTRACT

**Objective**: Evaluate the readability of the Management Reports of the Brazilian public sector from 2016 to 2019, with the structural change from adopting the Integrated Reporting (IR) approach in 2018.

**Method:** Using the R software, the readability was calculated using the Flesch Readability Index of 3,720 reports issued by 930 institutions over the years.

**Originality/Relevance:** This is the first study that analyzes the readability of reports from all Brazilian public institutions, especially considering the context in which the Integrated Reporting approach was adopted.

**Results:** The research data indicated a decrease in the general readability of the Management Reports over the years analyzed and more expressively between 2017 and 2018. It was also verified that adopting the IR while structuring the Management Report influenced its conciseness with reducing pages, words, syllables, and sentences.

**Theoretical/Methodological Contributions**: The data show that, in the public sector, the IR cannot yet be pointed out, in fact, as an instrument of public governance since it is still deficient in the sense of transparency from the perspective of readability. It is understood, however, that the concept of IR, and, even more, its insertion in the Brazilian public sector, is recent, therefore needing some time to consolidate.

**Social/Management Contributions:** The study provides a diagnosis to the preparers on how the reports have been presented, in terms of readability, in comparison with the orientation of being legible, and helps in improving the document as an instrument of social control.

**Keywords**: Integrated Report, Public sector, Management report, Accountability, Readability.

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## **1 INTRODUCTION**

Public administration has changed after the 2008 financial crisis, the Welfare State and developmental crisis, and the rise of New Public Management (NPM) (Matias-Pereira, 2010). Public Management has been striving to achieve efficient conduct in interactions between the State, market, and society through governance (Lynn & Malinowska, 2018).

The emergence of New Public Governance (NPG) is an offshoot of NPM (Santos & Rover, 2019). NPG starts from the perspective that more efficient public administration results can be achieved from more flexible administrative procedures, which consider trust and the inclusion of citizens as pillars of governance (Pedersen & Johannsen, 2018).

In Brazil, the Federal Court of Accounts (TCU, 2020a), responsible for the external control of public administration, listed principles for public governance, among which transparency and accountability stand out. The concepts are intrinsically related, as one is indispensable to the other (O'Donnell, 1998; Willems & Van Dooren, 2012). Thus, studies have investigated the implications of the relationship between public information disclosure, citizen participation, and increased accountability of public administration (e.g., Busuioc & Lodge, 2017; Ali & Pirog, 2019; Reddick et al., 2020).

In this sense, the discussion on the gap between nominal and effective transparency is convened from the perspective of the information reader, which must be considered for effective transparency and accountability (Hood & Heald, 2006; Villoria, 2021). The concern with the use of simple and citizen language is present in several Brazilian government documents (e.g., Brazil, 2011; TCU, 2018; TCU, 2020a; TCU, 2020b), demonstrating the material importance given to the topic by the government and the TCU, body to which federal public institutions report, in line with the literature on transparency.

To promote good public governance, the TCU adopted the Integrated Report (IR) as the Management Report's structure, the main federal accountability document delivered annually (Brazil, 2018). IR is a reporting approach, officially structured in 2013 by the International Integrated Reporting Council (IIRC), later encompassed by the Value Reporting Foundation (VRF), aimed at communicating global value generation through the articulation of financial and non-financial data (VRF, 2021).

Research carried out deals with IR membership in private entities (e. g. Chaidali & Jones, 2017; García-Sánchez et al., 2019; Gonçalves et al., 2019; Roman et al., 2019; Caglio et al., 2020). However, few works investigate the challenges and perspectives of implementation in the public sector (Guthrie et al., 2017; Biondi & Bracci, 2018; Sonnerfeldt & Pontoppidan, 2022). In Brazil, some studies deal with the use of IR in the public sector in case studies (e.g., Freitas & Freire, 2017; Favato et al., 2020), and only Moraes and Vieira Neto (2022) studied the applicability of IR in the Report of Management, in public universities, from the perspective of adding value; this demonstrates the need to expand the scope of studies developed in the public sector, to explore aspects of the interaction between its peculiarities as a public sector, as well as the differences between each legal nature belonging to it.

Studies indicate that documents structured in the IR model have been written in a complex and poorly readable way (Stone & Lodhia, 2019; Melloni et al., 2017; Roman et al., 2019), with scarce longitudinal legibility studies that verify its evolution (Moreno & Casasola, 2016; Stone & Lodhia, 2019).

Thus, verifying whether the information presented in the new approach impacts its readability in relation to previous reports is helpful. Therefore, this research seeks to answer: What is the impact on the readability of Management Reports with the change in its structure and adoption of the Integrated Report? The objective is to evaluate the readability of the Management Reports of the Brazilian public sector from the years 2016 to 2019, with the structural change from adopting the Integrated Reporting (IR) model in 2018. Thus, the work focuses on the accountability of institutions belonging to the Federal Government, which

deliver Management Reports to the TCU, which is responsible for regulating and judging the documents mentioned.

Dumay et al. (2016) state that one cannot accept the rhetoric that IR is an evolution of corporate reporting and that practical research should verify whether adopting the model improves users' informational level. Also, Soriya and Rastogi (2021) reinforce the need to increase empirical studies on its application.

This investigation contributes to the literature in three points. First, it advances the previous literature (e.g., Hood & Heald, 2006; Roman et al., 2019; Stone & Lodhia, 2019; Villoria, 2021) empirically demonstrating the importance of paying attention to the complexity of the public document, as understanding is necessary to implementation of transparency. Second, it advances the discussion on legibility, accountability, and enforcement (e.g., O'Donnel, 1998; Ali & Pirog, 2019; Demir et al., 2019; Saldanha et al., 2022). Finally, it empirically discusses the readability and effectiveness of governance based on readability (TCU, 2020a).

The IR is used for the first time as a mandatory and irreplaceable accountability instrument in the Brazilian public sector. By accountability, the process of information, justification and punishment (Schedler, 1999; Bovens et al., 2008) is understood as applicable to the TCU. The behavior of the readability of the IR, obligatorily delivered to those who can punish, was not evidenced in the previous literature.

Thus, this research brings, in addition to the points above for the advancement of the literature, contribution: a) theoretical in the discussion on the quality of communication via IR in the public service; on IR applied to environments subject to legal punishment; and about IR as responsible for promoting public governance; b) practice, providing diagnostics to preparers on how reports have been presented, in terms of readability, compared to guidance on being readable, and; c) social, helping to improve the document as an instrument of social control.

## **2 THEORETICAL FRAMEWORK**

#### **2.1 Transparency and Accountability**

The context of crises led society to distrust the State's ability to provide services (Bevir, 2011; Lynn & Malinowska, 2018), encouraging it to promote public governance (Pedersen & Johannsen, 2018), accountability (Brummel, 2021), transparency (Saldanha et al., 2022) and efficiency (Bresser-Pereira & Spink, 2007; Reddick et al., 2020). From an economic perspective, governance is seen as a mechanism that tries to mitigate agency conflicts between principal (citizen) and agent (public manager) and the information asymmetry present in the relationship (Matias-Pereira, 2010; Willems & Van Dooren, 2012; Pedersen & Johannsen, 2018; Voorn et al., 2019).

Przeworski (2007) argues that the full exercise of democratic institutions does not guarantee accountability, given the informational asymmetry. The author indicates the need for independent control institutions to evaluate government acts, as the TCU case. Established to exercise external control, TCU published in 2013 the first version of its Basic Organizational Governance Reference, updated in 2020, establishing principles and guidelines for public governance (TCU, 2020a).

In this research, it is necessary to examine two principles, transparency and accountability, which, despite being separate, are intertwined; this is because transparency is a condition for the realization of democratic accountability through the quality of accountability and the possibility of supervising public agents (O'Donnell, 1998; Willems & Van Dooren, 2012).

Hood and Heald (2006), reinforced by Villoria (2021), draw attention to the dichotomy between nominal and effective transparency, which can generate the illusion of transparency, which happens when information is made available inappropriately or outside the reader's cognitive ability to interpret and use the information. Rodrigues (2020) points out that the search for effective transparency represents the institutions' efforts to practice full transparency.

The TCU (2020a, p.45) conceptualizes transparency as "the possibility of access to all information relating to the public organization, in a citizen language". It is not the first time the subject crosses the language: the Law of Access to Information (Brazil, 2011) recommends that the State guarantee the right of access to information provided in an easy-to-understand language.

The principle of accountability, in turn, encompasses the rendering of accounts and accountability (TCU, 2020a), highlighting its conceptual multiplicity. Campos (1990) points out that accountability is practiced as objective responsibility, from which a public manager must render accounts and can be punished. Schedler (1999) points out three stages necessary for the term: information, justification, and punishment. The first two refer to the obligation of the agents to inform and respond to society, that is, to the rendering of accounts, and the last one to the capacity of enforcement (Pinho & Sacramento, 2009). Studies show that the legal oversight exercised over public managers can affect their behavior and how they are held accountable (e.g., Liston-Heyes & Juillet, 2020; Murphy, 2020; Cordery & Hay, 2022).

Accountability can be vertical, thus related to the claim and the principal-agent relationship (O'Donnel, 1998; Bovens et al., 2014; Reddick et al., 2020). It can be horizontal, which occurs from the control exercised by institutions independent of public administration (O'Donnel, 1998; Reddick et al., 2020). Moreover, it can be hybrid, starting from a more nuanced perspective of accountability, sometimes vertical, sometimes horizontal, and sometimes both (Willems & Van Dooren, 2012; Reddick et al., 2020). The Constitution of the Federative Republic of Brazil (1988) delegates to the TCU the exercise of external control, analyzing and judging public managers' accounts and allowing it to punish irregular accounts.

## 2.2 Management Report, Integrated Report and Readability

Direct and indirect federal public administration organizations are required to render accounts and prepare the Management Report, an annual document showing the Management of resources during the year (Brazil, 1992). The expectation of accountability in the public sector has been changing along with the demand for complete information: there is increasing pressure from society for information related to performance and non-financial data (Biondi & Bracci, 2018).

The literature points out that accountability can be improved over time based on learning (Bovens et al., 2008). Theorists have also pointed to the power of language to construct reality (Berger & Luckman, 1966; Bourdieu, 1991).

The report changed its structure, as well as TCU's understanding of the effectiveness of accountability (Brazil, 2014). One innovation is the adoption of the IR in the Management Report, as of the 2018 fiscal year, with no alternative options for the report's structure (TCU, 2018). Before that, Law No. 13,303/2016 already required public and government-controlled companies to disclose an integrated or sustainability report annually as a transparency requirement.

The IR emerged from discussions about reporting information, the end product of an integrated thought process in the organization to communicate about the entity's value creation (VRF, 2021). For VRF (2021), traditional corporate reports are highly complex and not very accessible to their users.

The first IR framework was published in 2013, currently in a revised edition (VRF, 2021), and lists, as principles: strategic focus, information connectivity, stakeholder relations, materiality, conciseness, reliability and completeness, coherence and comparability, clarity, timeliness, and transparency. TCU used this approach to structure the Management Reports (TCU, 2020b).

Although it was designed for private companies, its application in public administration began to be discussed (Oprisor et al., 2016), and since 2016, the concept has been introduced in the Brazilian public sphere (Brazil, 2018; Brazil, 2020).

To guide preparers, TCU has prepared and updated, since 2018, a guide for preparing Management Reports in the form of IR (TCU, 2020b). In it, the section dedicated to public governance addresses the expectation that innovations in Management Reports increase the responsiveness and control of public agents, which is in line with the promotion of governance (TCU, 2020b).

The concern with simple language appears in the conceptual development of the principle of conciseness and clarity (TCU, 2020b). Still, as a gain from adopting the approach in a pilot project in 2017 at the Ministry of Finance, the TCU points to the technical language giving way to "language aimed at the citizen, that is, simple" (TCU, 2018, p. 17). According to TCU, the change made accountability more efficient, responsive, and contributory to improving Public Administration (Brazil, 2018).

In the previous literature, Chaidali and Jones (2017), in an interview with preparers, demonstrate resistance arising from the lack of clarity in the guidelines for the production of IRs and the format and length of the reports; this contrasts, however, with the orientation towards conciseness, leading to a possible contradiction between the guidelines for producing concise reports and, on the other hand, complete and balanced reports (Melloni et al., 2017).

Biondi and Bracci (2018) analyzed government reports in Italy, including the IR, and concluded that managerial innovations are highly likely based on trends, not rational decisions. Manes-Rossi (2018) concluded that the model, as it is, is not capable of being a reference standard for effective accountability.

Concerning previous studies on the readability of the Integrated Report, Du Toit (2017) was one of the first to address this aspect. The work analyzed the readability of reports produced

in the IR framework by a sample of companies listed on the South African stock exchange, in which the use of IR is mandatory. The results showed low legibility of the documents and demonstrated, through correlation analysis, that the reports awarded for their quality had more difficult legibility than the others.

Stone and Lodhia (2019), when analyzing the readability of reports available in the database of the then IIRC, show that the readability of the analyzed reports was low and did not improve over the years. Roman et al. (2019), in an analysis of reports available in the same database with a country cut, presented results that indicate that the documents produced in countries that value transparency unexpectedly are constructed in a less readable way than the others.

Finally, Caglio et al. (2020) showed, in an analysis of companies listed on the South African stock exchange, that the readability of the Integrated Report can also be influenced by characteristics derived from the operation in the capital market, such as market valuation higher, stock liquidity and analyst forecast. Thus, the relationship with the market can also affect readability (Caglio et al., 2020).

#### **3 METHODOLOGICAL PROCEDURES**

The deductive method was used to achieve the proposed objective, which starts from analyzing theories for observations and a quantitative approach, that is, by handling statistical techniques to analyze results (Matias-Pereira, 2016). Thus, the Management Reports issued by the Brazilian public sector between the financial years 2016 and 2019, delivered in the year after its closure, between 2017 and 2020, were analyzed.

The choice of the period is due to the years in which the structural change to the IR model had already occurred (2018 and 2019) and the same period without the change (two years). The 2020 financial year was not considered due to regulatory changes regarding its

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delivery, interfering with its comparability with the other years analyzed. Document extraction occurred between January 4 and September 2, 2021, totaling 4,783 reports.

Some reports were excluded due to the extinction, creation, and aggregation of institutions in the period (672); others had not yet been delivered (27); and others whose text did not have reliable lexical content extraction (364). In this way, the sample comprises 3,720 reports issued by 930 institutions over the four years, or 78% of the sample. Table 1 distinguishes the analyzed organizations according to their legal nature.

#### Table 1

Leg	Amount	Representativeness		
Direct Administration	Public agency	76	8%	
	Mixed Economy Company	21	2%	
	Local Authority	590	64%	
Indirect Administration	Public Company	23	2%	
	Public Foundation	38	4%	
	Autonomous Social Service	182	20%	
Total		930	100%	

Sample distributed by legal nature

The documents were processed with the help of the "R" program, using the Readability package (Rinker, 2017). The main limitation of processing software is that scanned documents cannot be analyzed. The analysis does not apply to tables, charts, and images; therefore, these elements were not considered in the readability calculation, having been excluded.

Another limitation is that the chosen packages do not have a dictionary in Portuguese. However, after comparing the samples, it was found that the difference in results, considering the dictionary in Portuguese and English, was not significant. In addition, other studies have also indicated that there are no significant differences, in terms of language, in the Flesch index, which can be used for both English and Portuguese texts (Martins et al., 1996; Gomes et al., 2018; Borges & Rech, 2019). Thus, we proceeded with the analysis of the legibility of the documents, a technique used in several corporate reports such as accounting documents (Pasko et al., 2020; Hasan & Habib, 2020), corporate social responsibility (Demaline, 2020) and IR (Velte, 2018; Stone & Lodhia, 2019).

Although there are several methods to analyze readability, the Flesch index is the one that is suitable for use in Portuguese, having been validated by Martins et al. (1996). Moreno and Casasola (2016) state that Flesch's proposal is the most recurrently adopted in accounting research, making them comparable.

Dubay (2007) defends the Flesch index for its precision and simplicity. In previous research on readability and Integrated Reporting (e.g., Du Toit, 2017; Supratiwi et al., 2022), the index was also used, reinforcing the reason for its use in this research, given the increase in comparability in the results.

According to Flesch (1948), the clarity of language is related to the construction of the text, as its syntactic structure is responsible for making it more or less readable. The metric considers the educational/training level of the person reading since, cognitively, the processing of what is read is related to the complexity of what the reader reads. Thus, regardless of skill, familiarity, or training, a more readable text is read and understood more easily than a less readable text, given that the metric is constructed from the lexical structure of the text (Smeuninx et al., 2016).

The formula proposed by Flesch (1948) and used in this work is:

$$FLESCH = 206,835 - (1,015 \ x \ ASL) - (84,6 \ x \ ASW)$$
(1)

Being:

Average Sentence Length (ASL): Average sentence length, calculated by dividing the number of words by the number of sentences. It is

Average number of Syllables per Word (ASW): Average word length, calculated by dividing the number of syllables by the number of words.

Fry (2002) explains that sentences with more words hinder the reader's ability to memorize, and the calculation of word size is associated with the fact that very large words can be complex. After calculating the formula, the result is a number between 0 and 100: the closer to 0, the less readable it is.

The normality of the sample was verified by the Shapiro-Wilk test to perform the statistical tests. In none of the years, the sample is normal. Therefore, the non-parametric Kruskal-Wallis test was used to analyze the data's variance, where it was verified that the readability distribution was not equal in all years. The non-parametric Dunn (1964) test was performed to verify where the differences were, identifying that at least one of the compared groups was proportionally different from the others.

## **4 RESULTS PRESENTATION**

#### 4.1 Readability

Conciseness is a basic principle of IR, listed by the framework for building the document (VRF, 2021). The TCU also addresses the issue, advising institutions to "express concepts clearly and with as few words as possible" (Brazil, 2018, p. 20). Still, the literature points to conciseness as an important element for syntactic ease reading, that is, readable (Flesch, 1948; Mihaela et al., 2019). Table 2 shows the number of pages and words in the analyzed reports.

To analyze readability through the Flesch index (1948), it is also necessary to calculate the number of syllables and sentences. Table 3, therefore, indicates these values and demonstrates that the number of syllables and sentences decreased with the adherence of the IR.

# Table 2

Number of pages and words

Metrics/Year –		Pages			Words	
	Average	Median	Total	Average	Median	Total
2016	164,58	134,00	153.056	46.551,44	33.491,50	43.292.838
2017	163,00	126,00	151.587	46.823,94	32.965,50	43.546.260
2018	121,27	106,00	112.778	30.727,48	26.772,50	28.576.559
2019	103,66	91,00	96.404	26.547,38	20.981,00	24.689.062

# Table 3

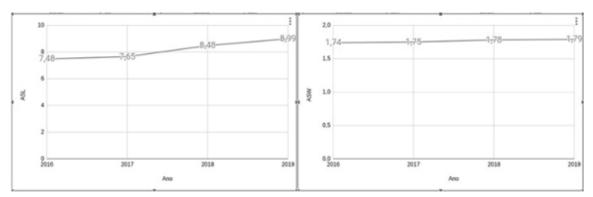
*Number of syllables and sentences* 

Metrics/Year	Syllables			Sentences		
	Average	Median	Total	Average	Median	Total
2016	81.094,09	58.036,00	75.417.500	6.219,58	4.810,50	5.784.209
2017	82.126,93	56.997,50	76.378.044	6.117,97	4.651,50	5.689.708
2018	54.583,45	47.805,50	50.762.612	3.624,26	2.946,50	3.370.561
2019	47.396,98	37.062,00	44.079.192	2.952,96	2.233,50	2.746.252

The readability of a text is obtained from the weighting of the average length of sentences (ASL), which relates the total number of words in the text and the total number of sentences, and the average word length (ASW), calculated by dividing the total number of syllables by the total number of words. Figure 1 demonstrates the ASL and ASW of the analyzed institutions.

#### Figure 1

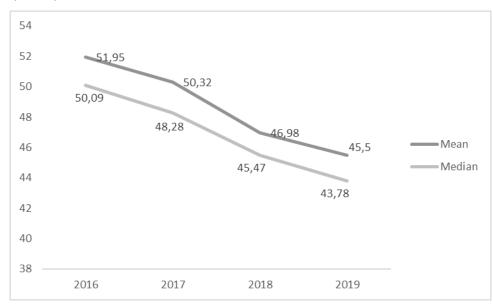
ASL and ASW



Revista Contabilidade, Gestão e Governança. Brasília, V.26 N.2, p. 213-248, May-Aug. 2023 225 With these values, it was possible to calculate the readability based on the relationship between ASL and ASW, and the data can be seen in Figure 2.

#### Figure 2

Readability analysis



Then, to check for differences in readability between years, the Kruskal-Wallis test was performed, which showed a p-value of 0.000, indicating that the distribution of readability is not equal, and the Dunn test, which performed subsequent multiple comparisons, indicating a difference present in all years analyzed, as seen in Table 4.

## Table 4

Dunn test

Year	2016	2017	2018
2017	155,443 (0,001)		
2018	491,440 (0,000)	335,997 (0,000)	
2019	679,805 (0,000)	524,362 (0,000)	188,366 (0,001)

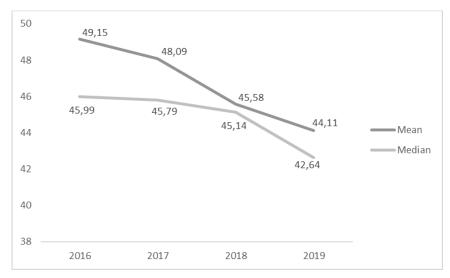
Note: The number in parentheses represents the p-value of established comparisons.

# 4.2 Legal nature

In order to better understand the general result, the readability of the reports by legal nature was additionally calculated. Figure 3 illustrates the evolution of the readability of the 76 Public Bodies analyzed.

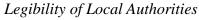
# Figure 3

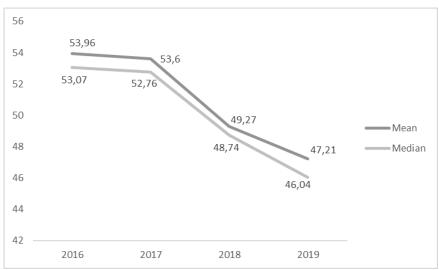
Legibility of Public Bodies



Concerning Local Authorities, Figure 4 shows that the readability of the 590 institutions also decreased over the years, mainly with the change in the reporting model.

# Figure 4



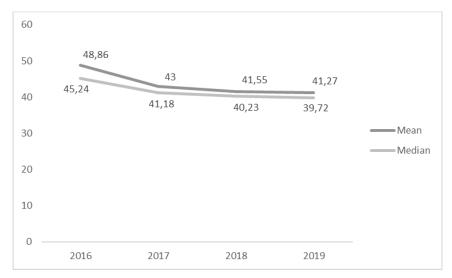


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Figure 5 demonstrates the readability behavior of the 182 Autonomous Social Service institutions, in which it is possible to observe a decrease in years, with the peculiarity that, between the years 2016 and 2017, the decrease is greater than that which occurred between 2017 and 2018, year of IR membership.

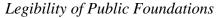
# Figure 5

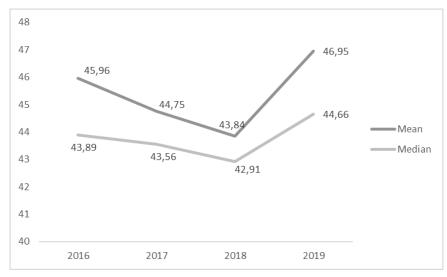
Legibility of Autonomous Social Services



Comprising 38 institutions, most of the Foundations analyzed are from universities (22 institutions), which, due to legal imprecision, are partly defined as Local Authority and partly as Foundations (Zielinski & Costaldello, 2014).

# Figure 6

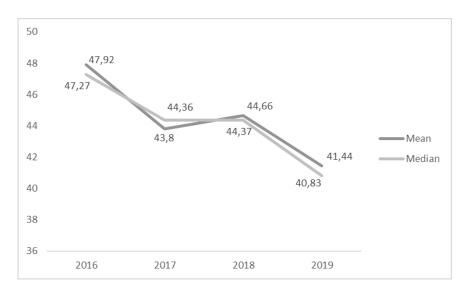




Public Companies, on the other hand, are created to explore economic activities, being a business entity (Meirelles, 2016), allowing us to assume that these are inserted in the market and are influenced by it. Figure 7 shows the result of this subsample, with 23 institutions.

# Figure 7

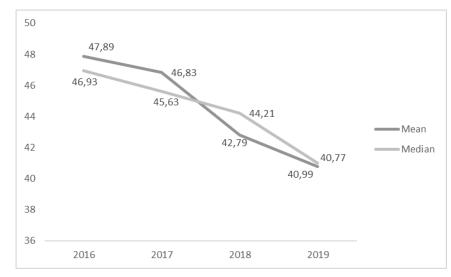
Legibility of Public Companies



As already mentioned, the Sociedade de Economia Mixta is also a business entity (Meirelles, 2016) and is therefore inserted in the market and influenced by it. Figure 8 shows the results of the legibility of this legal nature, whose sample comprises 21 institutions.

# Figure 8

Legibility of Joint Stock Companies.



#### **5 DISCUSSION OF THE RESULTS**

Regarding the conciseness of the reports, Table 2 demonstrated that the institutions met the expectation of Normative Decision No. 170 (Brazil, 2018) of producing more concise reports, given the shortening of the number of pages and the adoption of infographics as a support for the explanation of complex information, which leads to the substitution of words for pictures.

This reduction was also observed in the number of syllables and sentences from adopting the IR, which can characterize a less syntactically complex document and less difficult to read. Therefore, the metrics analyzed showed increasing conciseness, especially with the adoption of IR, pointing to a relationship from which an improvement in readability is expected (Flesch, 1948; Mihaela et al., 2019), seeing an effort to comply with the principle of conciseness (VRF, 2021).

However, contrary to what has been seen so far, the length of sentences (ASL) has increased over time, especially after the change from 2018 onwards. This result, apparently contradictory to the fact that words and sentences decrease with change, can be explained by the perception that although both have generally decreased, the proportions are different.

This result demonstrates that, over time, and at the extremes of the analysis, the sentences were reduced in a greater proportion than the reduction of the total number of words: this indicates that the sentences got bigger, longer, and therefore more complex (Flesch, 1948). Thus, the texts began to contain fewer sentences, but the phrases became larger, concerning size; this is because the words were reduced in quantity, but not as much as the number of sentences. Thus, having more words and fewer sentences, it is understood that these words were embedded in larger sentences.

Similarly, ASW behaves contrary to expectations: while words and syllables decrease over the years, ASW increases, albeit discreetly. Again, the increase in the average word length is due to proportionalities: the syllables, an element of the numerator of the formula, increased between the years 2016 and 2017, while the words, located in the denominator, decreased. Between 2017 and 2018, the year of the model change, the decrease in the number of syllables was around 33%, while words decreased by approximately 34%. Between 2018 and 2019, the reduction of syllables was smaller, around 13.17%, while words were reduced by 13.6%. Finally, at the sample extremes, 2016 and 2019, 42% of syllables and 43% of words are reduced. Thus, the increase in ASW shows that contrary to expectations, the words also became longer with time.

This result, from the perspective of Flesch (1948), shows that, over time, more complex words have been used, contradicting the guidance of the TCU: The management report must be concise and comprehensive, written in a language oriented to the citizen and aim at society as the primary recipient (Brazil, 2018, p. 5). The data indicate that, from the perspective of the average sentence length, the change caused by the adherence to the IR made the reports more difficult to read and memorize (Fry, 2002); this contrasts with what is expected from this document regarding building a clear and concise report (VRF, 2021; TCU, 2018; Brazil, 2018).

By performing the analysis using the Flesch index, it was noticed that the readability decreased over time; that is, the documents delivered by public institutions became less legible and more challenging to read. Although this decrease happens every year, it was more significant between 2017 and 2018, which marks the adoption of IR as an approach to the Management Report.

The result found through the Dunn test indicates that each year's readability averages vary significantly, demonstrating that, although some average differences are small, statistically, they are not occasional. Therefore, it can be seen that there is a tendency for readability to deteriorate before and after the adoption of the IR; this allows us to assume that not even the use of the IR structure could remedy the decreasing readability.

This result also contradicts the expectations of the VRF (2021) and the TCU (2018) of obtaining, with the IR, a clear and easy-to-understand report. The general result demonstrates that the management reports were less readable, realizing that they did not achieve the objective of being accessible for the citizens to understand (Brazil, 2018).

In order to better understand the results found, analyses of readability by a legal nature were carried out, and, in line with the general result, public bodies also presented a worsening in their readability with the adherence to the IR. Despite this, the report was reduced by almost 50% in pages, comparing the results of the sample extremes, 2016 and 2019; this demonstrates that its size reduction did not improve its readability, allowing us to assume that the bodies tried to explain themselves more in the reduced available space.

This result goes back to the discussion by Melloni et al. (2017), which points to possible tensions between the IR guidelines. According to them, there was guidance on producing concise documents without explaining how to do it without jeopardizing completeness and balance. The low readability in all exercises corroborates the findings of previous research, which demonstrate that documents structured in IR have a low degree of semantic understandability and a high level of syntactic complexity (Stone & Lodhia, 2019; Melloni et al., 2017; Roman et al., 2019; Caglio et al., 2020).

A decrease in readability was also verified by the local authorities after the adoption of the IR, corroborated by the discussion raised by De Villiers and Sharma (2017) that, for the approach of reporting in an integrated way to be successful, the concept of thinking integrated must be able to overcome the practice of building fragmented reports (Brazil, 2018). From this point onwards, the decline in readability points to poorly understandable texts, allowing us to assume that the element of "clarity" is not being met and that the logic of integrated thinking does not help. The decline in readability is also observed in self-employed social service institutions, with a greater drop between 2017 and 2018, the year of IR membership. Concerning foundations, represented mostly by universities, it was observed that, between 2016 and 2018, there was a decrease in readability, but in 2019, unlike previous results, there was an increase in readability. Given that universities are centers of knowledge in constant contact with scientific research and updates, it is assumed that the improvement in readability also follows this process.

Unlike the previously analyzed legal natures, public and mixed economy companies received prerogatives to use IR before other institutions in 2016. Thus, the fall in legibility of public companies in 2017 follows the general result since, for this nature, this was the first year of discussion and preparation of a document on the approach. Also, since the market influences this nature, events in the economic context make it possible to relate the worsening in readability in the years cited to performance affected by the crisis, as previously demonstrated (Melloni et al., 2017; Caglio et al., 2020).

Regarding the most significant drop between 2018 and 2019 with IR, it is worth analyzing the political context in which public companies operate. In 2019, the inauguration of President Jair Bolsonaro and the continuation of state privatization initiatives initiated by the government of Michel Temer (Silva & Rodrigues, 2021) may have influenced the dissemination of Management Reports.

Thus, the criticism by Flower (2015) is pertinent, which argues that the few demands made on IR preparers give institutions the power of selective disclosure. This scenario corroborates the criticisms made, as it raises the possibility that government reports structured in IR are built considering their context and performance, not just the information's materiality.

The readability of the reports of the mixed economy companies also decreased over time and, in the same way as public companies. Thus, it draws attention to the fact that the readability of none of the years between 2017 and 2019 surpasses that found in 2016 when the IR was not yet legally foreseen. It is also noted that neither public nor mixed economy companies showed significant improvement in reporting, even though they had previous contact with the IR concerning the other legal natures analyzed.

Thus, it can be seen that the more extended exposure period to IR concepts was also not enough for the learning component to improve readability when reporting; this is in line with how the IIRC prospected IR as an evolutionary response to the diverse interests deposited in corporate reports (Oprisor et al., 2016).

#### **6 FINAL CONSIDERATIONS**

The research data indicated a decrease in the general readability of the Management Reports over the years analyzed and more significantly between 2017 and 2018. It was also verified that adopting the IR as a structuring of the Management Report influenced its conciseness with reduced pages, words, syllables, and sentences.

Despite this, the results showed that the average length of sentences (ASL) and the average length of words (ASW) increased over time, leading to a drop in readability. Differences in legibility were also found when the legal natures were analyzed separately: public bodies, local authorities, government-controlled companies, and autonomous social service institutions followed the general trend of falling legibility. This decrease took place in the context of political and economic instability in the country.

Public foundations showed a different behavior: Despite decreasing the readability of reports between 2016 and 2018, the result for 2019 indicates an improvement in the index. Finally, public and mixed economy companies, with greater interaction with the market and which received guidelines for using IR before other types, also decreased readability, especially between 2016 and 2017. Given that, since 2016, the same was already exposed to discussion

and prediction of the use of IR, the research adopts the perspective that the drop in readability in 2017 also follows the general result; this is because the exercise above, for organizations of this nature, is the first to build reports under the influence of IR.

Thus, there was an alignment between the results and the literature, which demonstrates that, despite the IR proposal (VRF, 2021), less readable reports have been produced when structured using this approach (Stone & Lodhia, 2019; Roman et al., 2019; Caglio et al., 2020); this contradicts TCU's objective of making it more transparent and efficient, pointing out that the process needs to be improved in the sense of clearer guidelines regarding the importance of readability for achieving the expected objectives with the use of IR, as addressed by Chaidali and Jones (2017).

These results contribute to the point of Hood and Heald (2006) and Villoria (2021), who demonstrate that, for transparency to be effective, it is necessary to consider the reader's reading ability. Still, given the consideration of O'Donnell (1998) and Willems & Van Dooren, 2012, on the importance of transparency for the realization of accountability, it is seen that falling readability presents the opposite behavior to that expected for the strengthening of the two principles, which are basic to the project to strengthen public governance (TCU, 2020b).

Thus, from the perspective of accountability, it is clear that the IR cannot yet be reliably appointed as a monitoring instrument for public agents. This result is consistent with the discussion raised by Manes-Rossi (2018), who pointed out that the approach, if practiced in the same way as originally conceived, cannot be an instrument of accountability, given the peculiarities of the public sector.

In Brazil, the practice of rendering accounts regulated by the TCU, now through the IR, also encompasses the legal element of obligation and the possibility of punishment. Elements that, in association, have not yet been examined by the literature. Thus, it can be thought that, despite all the rhetoric involving the IR (Dumay et al., 2016), the management report was not

stripped of its legality as a formal instrument of accountability, and the TCU continued to have power punitive in the judgment of accounts.

In this sense, the ideas of Hood (2010) and Roman et al. (2019), who suggest that too much transparency can make the agents act defensively in their communication, are relevant. Although it is impossible to affirm that the TCU promotes excessive transparency with the implementation, there is a chance that the context of obligation and the possibility of punishment interfere with how the preparers construct the IR.

In addition, Chaidali and Jones (2017) previously pointed out the perception of trainers from private institutions about the difficulty of reporting all the dimensions of the IR concisely, as they find equal or greater space to be needed for this.

Thus, one can also think of this element as a possible explanation for the finding that, despite being more concise, words and phrases became longer in an attempt to report all the information. Still, this assumption is also supported by the discussion raised by Melloni et al. (2017) regarding the difficulty of reconciling two fundamental principles of IR: conciseness combined with completeness.

Many government efforts draw attention to the issue of language, and theorists have pointed to the power of language in the construction of reality (Berger & Luckman, 1966; Bourdieu, 1991) and in breaking the illusion of transparency (Hood & Heald, 2006; Villoria, 2021). By demonstrating that readability drops in years and that there is no improvement in the adoption of IR, the data indicate that, in the public sector, IR cannot yet be pointed out, in fact, as an instrument of public governance since it is still deficient in the sense of transparency from the perspective of readability.

It is understood, however, that the concept of IR, and even more its insertion in the Brazilian public sector, is recent. Thus, the TCU states that producing a document along the lines of the IR is "the result of a process that takes time to consolidate" (TCU, 2021, p.1). In

this sense, it is possible that the learning component, pointed out by Bovens et al. (2008), produces improvements in reporting as preparers learn how to do it. Even so, it is worth returning to Rodrigues's point (2020), which points out efforts to mitigate the gap between nominal and effective transparency as a search for full transparency.

As a limitation of this research, the incipient practice of IR in the institutions studied is pointed out. It is possible that, with exposure to the concepts and production of this type of report, the quality of disclosures will increase. The second limitation is the method used, which dates back to 1948 and uses mathematical simplifications to establish inferences about readability. Another limitation is that the R software does not read text from images and tables, although it does not influence readability. Finally, the electronic reading of the documents does not allow observing specificities that could only be visualized with the content analysis.

For future research, other methods are suggested, such as verifying the content and investigating the elements that interfere with its readability. In addition, conducting focus groups and interviews with report preparers and users can compare the data found in this research and indicate possible adjustments to the model. Also, studies on readability in the Integrated Report can be analyzed under other theoretical lenses, such as Information Theory, to deepen the understanding of the phenomena associated with using IR. Finally, it is suggested that the readability of the reports continue to be monitored to verify if, with learning, there will be improvement in these indicators.

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#### Legibilidade dos Relatórios de Gestão no Setor Público Brasileiro

#### **RESUMO**

**Objetivo**: Avaliar a legibilidade dos Relatórios de Gestão do setor público brasileiro, nos exercícios de 2016 a 2019, com a mudança estrutural a partir da adoção da abordagem de Relato Integrado (RI), em 2018.

*Método:* Com o software R, foi calculada a legibilidade, através do Índice de Legibilidade de Flesch, de 3.720 relatórios emitidos por 930 instituições ao longo de anos.

**Originalidade/Relevância:** Esse é o primeiro estudo que analisa a legibilidade dos relatórios de todas as instituições públicas brasileiras, especialmente considerando o contexto de adoção da abordagem de Relato Integrado.

**Resultados:** Os dados da pesquisa indicaram queda na legibilidade geral dos Relatórios de Gestão ao longo dos anos analisados, e de forma mais expressiva nos exercícios entre 2017 e 2018. Verificou-se também que a adoção do RI, enquanto estruturante do Relatório de Gestão, influenciou em sua concisão, com redução de páginas, palavras, sílabas e sentenças. **Contribuições Teóricas/Metodológicas**: Os dados demonstram que, no setor público, o RI ainda não pode ser apontado, de fato, como um instrumento de governança pública uma vez que ainda é deficiente no sentido de transparência, na perspectiva da legibilidade. Entende-se, no entanto, que o conceito de RI, e, mais ainda, sua inserção no setor público

brasileiro, é recente, necessitando, portanto, de um tempo para se consolidar.

**Contribuições Sociais/para a Gestão:** O estudo fornece um diagnóstico aos preparadores sobre como os relatórios têm se apresentado, na legibilidade, em comparação com a orientação de serem legíveis, e auxilia no aprimoramento do documento enquanto instrumento de controle social.

*Palavras-chave*: Relato Integrado, Setor Público, Relatório de Gestão, Prestação de Contas, Legibilidade.

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