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LEVEL OF ADHESION OF INTEGRATED REPORTING AND ACADEMIC PERFORMANCE INDICATORS OF BRAZILIAN FEDERAL HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

Purpose: The objective of this work was to analyze the relationship between the level of adherence of integrated reporting and academic indicators of the Federal Institutions of Higher Education (IFES). According to literature data, the Environmental Agenda in Public Administration (A3P) was the main strategy for implementing Social Responsibility in the public sector at the national level, while the integrated report was recently implemented in the Brazilian public administration. **Design/methodology/approach:** Bibliographic and documentary research and content analysis of integrated reports from Federal Universities and Federal Institutes of Higher Education were used. The information contained in the Integrated Report allowed the generation of an adherence indicator. In the pre-analysis phase, the management reports of federal institutions that adhered and those that did not adhere to the A3P were selected. The analyzes were performed using the Software for Statistics and Data Science® – STATA, version 13.0. **Findings:** The results revealed that empirical evidence indicates that the budget transferred to the institution does not positively influence adherence to the integrated report. There is no statistical difference in the analyzed metrics of IFESs with A3P compared to those that have not yet adhered to A3P. Thus, there are no statistically significant differences between the academic performance of institutions that have an active adhesion term with the A3P. **Originality/value:** This study is justified because it presents a reflection on Social Responsibility in the Public Sector and the transparency of this sustainable management. The institutions, when disclosing their socio-environmental actions in the sustainability reports, demonstrate their concern with this Environmental Agenda (A3P). Although some articles have addressed Integrated Reporting in the public sector, this study aims to carry out a detailed survey of Integrated Reporting as a mandatory accountability instrument in Brazilian federal public institutions. In Brazil, the Federal Court of Accounts (TCU) determines the rendering of accounts through Integrated Reporting; this differs from the practices evidenced in other countries.

INTRODUCTION

The book Social Responsibilities of the Businessman was written in 1953 in the United States, and its author, Howard Rothmann Bowen, brought the first comprehensive discussions on the theme of business ethics and social responsibility. In this work, the author already commented on social responsibilities and laissez faire, the entrepreneur's conception of his social responsibilities, the laws and the doctrine of social responsibility; in order to increase their effectiveness in business decisions and ethical issues related to income distribution.

Since then, we can see the change in terminology, from business social responsibility to Corporate Social Responsibility - CSR. Furthermore, this field has grown significantly and today contains a great proliferation of theories, approaches and terminology. Society and business, management of social issues, public policy and business, stakeholder management, corporate responsibility are just some of the terms used to describe the phenomena related to corporate responsibility in society. Recently, there has been renewed interest in corporate social responsibilities and new alternative concepts, including corporate citizenship and corporate sustainability (GARRIGA and MELÉ, 2004).

The growth of interest in the area of corporate social responsibility is essential for the improvement of reporting models used in these organizations, and the increase in research in this area benefits institutions that aim to use social and environmental reports in their management. Mathews and Perera (1995) argue that environmental accounting means an extension of disclosure into non-traditional areas, such as providing information about employees, products, community services and preventing or reducing pollution. Achieving economic efficiency is a necessary, but not the only, requirement for business sustainability. Stakeholders demand that business organizations are socially and environmentally responsible, and balancing financial performance and corporate sustainability is considered a major challenge in today's economic environment. These challenges provoked a growing interest in social and environmental research among academics, government agencies and professionals and environmentalists (ABDALLA *et al*, 2014). Companies, when using sustainability reports, will demonstrate their concern with the socio-environmental part. The sustainability tripod, known as the triple bottom line, which considers social, economic and environmental aspects in its activities, becomes every day a requirement of shareholders. Shareholders, however, are not the only ones seeking to understand the company's results, results that include the financial results and the environmental impact made to achieve the profits obtained. In this research, the three dimensions of sustainable development (UN, 2015) will be adopted: economic, social and environmental.

In the research carried out by Abdalla *et al* (2014), it was shown that previous studies on social and environmental accounting practices took place in developed countries, with limited investigation taking place in developing countries. As such, research examining environmental and social accounting practices in developing countries is important because it is unclear whether differences in economic development, specialization, culture, and technology impact social and environmental accounting practices. One of the main areas of growth within accounting over the past five years has been "accounting for the environment", which has generated interest far beyond the confines of accounting academics and professional accountants. Managers, the media, politicians and the public have noticed environmental problems, which is why the valuation of the interactions between business and the environment is present in current debates. It is important that we do not miss this current moment, as this field of study must lead to action and change in the relationship between businesses, the actors that make up society and the environment we need to support us (MATHEWS, 1997). In the public sector, there is a constant concern of managers to be accountable for money, goods and public values or for which the entity is responsible, or which, in its name, assumes obligations of a pecuniary nature, however other values need to be highlighted. The socio-environmental posture is also required and necessary. Likewise, the rendering of accounts of environmental accounting is essential and requires expertise for its preparation and presentation. The main focus of the work was to answer two questions: 1) what is the level of adherence of the integrated report of the Brazilian public sector? 2) What is the link with the administrative performance of Federal Institutions of Higher Education (IFES)?

The presentation of financial reporting in isolation makes full understanding difficult, and stakeholders are prevented from achieving awareness of how this organization creates value and the impact of this acquisition on the environment. Environmental risks need to be reduced and widely publicized. Thus, these institutions will be able to report the efficiency in reducing and preventing damage to nature following the precepts of the socio-environmental reports. In summary, the research objective of this study is distinct in several aspects from the work on sustainability in the public sector developed previously. Although some articles have addressed Integrated Reporting in the public sector, this study aims to carry out a detailed survey of Integrated Reporting as a mandatory accountability instrument in Brazilian federal public institutions. This thesis seeks to fill this gap, exploring the management reports of federal public institutions that are listed in the Normative Decision -

Federal Court of Accounts No. 183/2020. In Brazil, the Federal Court of Accounts (TCU) determines the rendering of accounts through Integrated Reporting; this differs from the practices evidenced in other countries. The Environmental Agenda in Public Administration (*Agenda Ambiental na Administração Pública* - A3P) created in 1999 as a proposal by the Ministry of the Environment, which sought to review production and consumption standards and to apply new standards of environmental sustainability in Brazilian public administration institutions. A3P is a voluntary activity, recommended by the Ministry of the Environment - MMA, in response to the understanding that the federal government has a strategic role in reviewing production and consumption standards and in the adoption of a new reference material for the pursuit of sustainability environmental, to encourage the adoption of more efficient technologies, to save raw materials and encourage the reuse of inputs.

LITERATURE REVIEW

Theories: There are several dimensions we can use to identify important aspects of corporate social responsibility (ROWLEY and BERMAN, 2000; WADDOCK and GRAVES, 1997). These can include, for example, measures of how the corporation treats its employees in relation to salaries, benefits and levels of safety in the workplace, how it interacts with customers, how it communicates the truth in advertising campaigns and in the prices of goods and services, how you treat your suppliers, respect and honor in informal contracts and commitments, how you treat the government, with respect to operating within the law and not trying to subvert it, and how you deal with the community with regard to making charitable contributions, ensuring that you do not it will harm the parties involved (ROWLEY and BERMAN, 2000). The socio-environmental position is linked to this commitment to maintain a good relationship with third parties, whether with those directly involved in the activity, such as employees and customers, or with other members of society in general. And this concern with not harming third parties is in line with the perception defended by the theory of legitimacy. Legitimacy Theory is a positive theory that encompasses the systems-oriented perspective and that is derived from the theory of political economy. Central to the theory of legitimacy is the theoretical construct known as the social contract.

We will explore the meaning of the social contract and discuss how compliance with it is essential to establishing and maintaining organizational legitimacy. We will consider the implications that will flow if an organization violates its social contract and describe the strategies that managers of organizations can adopt if the social contract is violated (DEEGAN, 2010). Among the many problems faced by the public administration, there is a lack of legitimacy, especially when the scenario is marked by constant denunciations, deviations and investigations. The need to provide an answer to the community forces managers to rethink their behavior, since interested parties cannot fully monitor and participate in the actions developed, as well as evaluate government actions according to institutional rules. Aldrich and Fiol (1994) present the term legitimacy in two: (a) how a new form is taken for granted and (b) the extent to which a new form conforms to recognized principles or accepted rules and standards. The first form of legitimacy is labeled cognitive; and the second, sociopolitical. For Deegan (2002), legitimizing disclosures means that the organization is responding to particular concerns that have arisen in relation to its operations. Disclosure decisions driven by the desire for legitimate are not the same disclosure policies driven by a management view, referring to the community's right to know about certain characteristics of an organization's operations. One motivation is about survival while the other motivation is about responsibility. Considering these conjectures and the realization that public entities are still not being evaluated in relation to the concepts of sustainability, it is necessary to rethink current public management, especially in situations where the presentation of evidence through reports and statements is required or requested. appropriate. Therefore, the use of instruments that help the public area to communicate with society is an important point to be observed. In

1981, Grossman conducted research on the informative role of confidentiality assurance and product quality disclosure, and in the same year Milgrom also developed disclosure studies and published his article portraying the issues surrounding receiving good news. Both Grossman and Milgrom observed for the first time the result "revealing disclosure" called quality. According to this theory, superior companies must voluntarily disclose quality to distinguish themselves from inferior companies, as long as this is free. After the highest quality company discloses it, other companies are encouraged to replicate their achievements. Verrecchia (2001) proposes a taxonomy that covers three main types of dissemination research in Accounting: (1) association-based dissemination research; (2) judgment-based disclosure research (discretionary-based disclosure); and (3) performance-based outreach research. The first so-called "link-based disclosure" is the study of the effect of exogenous disclosure on the cumulative change or discontinuity in the actions of individual investors, primarily through the behavior of equilibrium asset prices and transaction volumes. The second term, discretionary disclosure, involves examining how regulators or companies act in their discretion with regard to the disclosure of information that they may have knowledge of. The third type describes "efficiency-based disclosure", which involves discussing which disclosure terms are preferred in the absence of prior knowledge of the information. Returning to the initial conceptions, the researchers' concern regarding the managers' discretion is perceived when in possession of relevant information for decision-making. Undeniably, the asymmetry of information driven by the conflict of interests leads to disbelief and disfavor of certain groups. The occurrence of incomplete and disconnected information in order to deceive the system is not a reality restricted to the stock market. These reflections apply similarly, with the necessary adaptations, to public organizations in their exercise of accountability to society.

Social and environmental indicators in the public sector: In the 70s we can highlight the works of Pikul (1974), Thomas (1972), Christian (1974), Flax (1972), Liu (1975a), Liu (1975b), Liu (1976), Ott and David (1976) focused on the theme of sustainability indicators. Ott (1978) in his book "Environmental Indices: Theory and Practice," presents the concern to develop a work to serve as a basic reference for users who wish to apply indices to analyze environmental data and is also intended to familiarize students, public in general, regulatory authorities and environmental specialists (environmental planning, engineers, statisticians, scientists, researchers, etc.). The author's areas of technical expertise lie in developing new mathematical techniques for interpreting and displaying environmental data, developing quantitative methods for environmental decision-making, environmental statistics, quality assessment, environmental modeling and simulation. Communities, governments, businesses, international agencies and non-governmental organizations are increasingly involved in creating the means to monitor performance and assess progress towards sustainable development. Over the years, individuals and organizations take stock of conditions and consider the future effects of current activities. There is a clear connection between "management by results" and associated reporting, whether at the scale of a local project, a group company or a large political jurisdiction. (HARDI and ZDAN, 1997). In a world facing accelerated climate change, economic instability and resource constraints, it is urgent to find better indicators of progress towards sustainability (DAHL, 2012). With the increasingly scarce expenditure of resources being directed and monitored for success, decision makers are actively seeking systems to ensure accountability (HARDI and ZDAN, 1997). Aware of this complexity, Ramos (2019) states that despite important progress and the vast amount of existing literature, sustainability indicators are still an underexplored field of study. The analyzed set of challenges and opportunities for indicators requires a critical analysis of some specific challenges. Despite the existence of discussions and research dealing with the disclosure of socio-environmental information, this theme is still in need of improvement, especially regarding the opportunity to improve the disclosure of socio-environmental information with transparency and credibility (BOND *et al*, 2012; ALMEIDA and CALLADO, 2017). In this approach, there is a demand for the study to improve and increase

the transparency of socio-environmental indicators, as the practice has not yet reached a situation in which methods and approaches have been proven to work satisfactorily. In public administration, indicators can also be used to assess: projects; activities; Law Suit; programs of the Pluriannual Plan and the various public policies. An organization that is not achieving its goals can use corrective measures in an attempt to achieve the planned goals. Indicators act as tools that lead to the desired behavior. The sustainability assessment is becoming a fundamental tool for decision-making around the world, with one of the main objectives being to support the monitoring of public policies and, thus, improve the management of socio-ecological systems, with more sustainable results and less negative effects (BOND *et al*, 2012; RAMOS 2019). The establishment of indicator systems is essential to determine the paths of development in sustainable pillars, from the monitoring of public policies to the construction of sustainability systems that support public policies, it must be based on an understanding of the area under study and adopt a framework comprehensive theoretical approach to existing problems and thus contemplate the various dimensions of sustainability (MARTINS and CÂNDIDO, 2015).

The challenge of using indicators within the sustainability movement is a simultaneous challenge of relevance, credibility and legitimacy so that a usability analysis can yield different results across particular policy boundaries operationalized by an indicator system (CASH *et al.* 2002; CASH *et al.* 2003; HOLDEN, 2013). Mediation can work to reinforce the legitimacy of the process by increasing transparency, bringing all perspectives to the discussion, providing rules of conduct and establishing criteria for decision-making (CASH *et al.* (2003). The set of reports, rendering of accounts, financial statements and data in its most varied formats are examples of information sources related to a specific management. However, a tangle of data does not provide fast and effective communication. Certainly, the indicators provide support to managers in ordering and synthesizing this information and thus systematically demonstrating their performance.Indicators are more effective and active when they are aligned with the values of your target audience (DAHL, 2012). The target audience is all interested parties in sustainability assessment and reporting and the particular emphasis is on key indicators for the general public, decision makers and managers. Whenever possible, non-technical language or graphics are used to facilitate dissemination, namely in the case of the main indicators (RAMOS and CAEIRO, 2010). These sustainability indicators can be useful individually to visualize the state of each country in terms of sustainability, what are its shortcomings and most relevant aspects, and to compare the sustainability of each country with that of other countries in its geographic area, as well as identify its most effective aspects (GALLEGO-ÁLVAREZ *et al*, 2015). Public services are the core output of public organizations and the sustainability performance of these services reflects the organization's commitment to sustainable development. This could contribute to supporting performance assessments of public services based on a comprehensive set of criteria and indicators (DOMINGUES *et al*, 2015; BATALHÃO *et al*, 2019). Given these statements, a comprehensive set of up-to-date, reliable, and timely indicators are essential tools for measuring institutional performance. When used well, indicators confirm whether management is adopting the best strategies

Higher Education Institutions as a multiplier of socio-environmental principles: Universities can make a significant contribution to improving the sustainability of regions through exemplary practices, research, teaching and taking a leadership role in community partnerships with a focus on sustainability. It has an important role to play, through its technical-scientific knowledge, independence, transparency and proactive and facilitating action, in helping all stakeholders to face new opportunities and risks for sustainability, and implementing the necessary measures (RAMOS, 2009).There are many higher education institutions that still observe sustainability as a theory or not linked to reality, not recognizing the institutional benefits that sustainable development can provide (Leal Filho, 2000; LEAL FILHO *et al*, 2016). Universities can seize many benefits when they develop sustainable practices (Leal Filho, 2000).

Administration and management are the main obstacles to sustainable development in higher education institutions (LEAL FILHO *et al*, 2017). Universities must transform themselves to become models of social justice and environmental management and promote learning about sustainability (LEAL FILHO *et al*, 2018). Academia can play an important role in many sustainable initiatives, providing credibility, scientific and technical support, and contributing to greater public participation. Universities must play an important role in education, research, policy-making, information exchange and the social outreach needed to create equitable and sustainable development (RAMOS, 2009). Participation presents itself as a benefit for the general paradigm shift towards sustainability in university culture and thus towards sustainable development (DISTERHEFT. 2015). Universities as agents of change play an essential role in promoting change and innovation. Its notoriety in terms of efficiency in training critical and participatory students is indisputable. It should be noted that all the potential and efforts should also be directed towards training individuals with responsible and sustainable practices.

Universities and their leaders need to be more proactive in making sustainable development an integral part of their system so that they can become leaders in creating new paradigms and eliminating old paradigms. For this to happen, they must ensure that the needs of present and future generations are better understood and met. For this, the team must be able to catalyze and implement paradigms focused on sustainability, introducing sustainable culture in all courses, curricula and activities of the HEI (LOZANO *et al.* 2013; HOOVER and HARDER, 2015; DISTERHEFT *et al*, 2016). In view of this conception, it is necessary to remember that educational institutions demonstrate the ability to become a multiplier of social and environmental principles internally and externally. It should also be added that universities train tomorrow's leaders and guide how students can integrate sustainability into every decision and action in order to achieve environmental improvements (PAVLOVA-GILLHAM and SWINFORD, 2017). Many higher education institutions still regard sustainability as theoretical or disconnected from reality, not recognizing the institutional benefits that sustainable development can provide. Universities can seize many benefits when they develop sustainable practices (LEAL FILHO, 2000). The author presents a critical analysis, using the method of case studies with examples from North American, European and African universities, showing how sustainability is being put into practice by these educational institutions.

The role of the academy should be understood simply as another contribution to facing the new problems and potential of sustainability. By acting responsibly and sustainably, academia is able to exert a significant influence on society. The student body and faculty can help activities aimed at cooperation and help societies become more sustainable (RAMOS, 2009; LOZANO *et al.* 2013; GALLEGO-ÁLVAREZ *et al* 2015). With regard to education, sustainability themes as well as in universities can also be introduced in secondary education to make students aware of the situation in the world around us (GALLEGO-ÁLVAREZ *et al* 2015). Governance is considered an important component in supporting higher education institutions' efforts to include sustainable development considerations as part of their strategies (LEAL FILHO, 2021; TEMEL *et al*, 2021). Stephens and Graham (2010) reinforce that universities have institutional stability and this attribute allows higher education to really have a strong potential to encourage and engage in broad and long-term thinking, which is difficult to achieve in other sectors or subsystems of society. Educational institutions, with recognition and social legitimacy, become a favorable space to develop and train future educated, aware and prepared individuals for the dissemination of environmental education. A privileged space to work on environmental issues, plan the progress of existing initiatives and create new work fronts. Regarding this topic, we can mention the research carried out by Bourdieu (1984) on universities as a social field, as a dynamic space, constituted by an unequal set of desired positions. He first distinguished the opposition between what we might call the mundane and scientific poles; and guided above all by

scientific power. Second, for social competence. The university reproduces in its structure the field of power whose concrete action is to select and inculcate what recreates the structure. Indeed, in its action as the space of difference between locations and, in the same way, between the positions of its occupants, it creates this space of positions. With that, the different constituent power fields are reproduced. This scientific power and its social competence provide a fertile environment for propagating social and environmental initiatives. The creation of initiatives to support and encourage the dissemination of conscientious actions, forming a chain of social projects, an extension project aimed at the environmental agenda. In addition to researching environmental impacts and encouraging dialogue between communities about sustainability. We understand that university strength often does not depend on solid scientific capital and the recognition it generates. To scientifically analyze the university world is to consider its object as a socially recognized institution, established to achieve a purpose with the pursuit of objectivity and universality (BOURDIEU, 2017). This perspective, which privileges the universality of higher education, reinforces the scope of the field and its role as a multiplier of all forms of knowledge, including the preservation of natural resources.

METHODOLOGICAL

Bibliographic and documentary research and content analysis of integrated reports from Federal Universities and Federal Institutes of Higher Education were used. The information contained in the Integrated Report allowed the generation of an adherence indicator in: Zero (0) for non-compliance; one (1) partially attends; two (2) answers. The research will be qualitative and quantitative. Following the analytical method of analysis developed by Laurence Bardin (2011), we will use the three main phases: a) pre-analysis, b) exploration of the material, c) treatment of results, inference and interpretation. In the pre-analysis phase, we will select the management reports of federal institutions that have joined and those that have not joined the A3P. The analyzes will be performed using the Software for Statistics and Data Science® – STATA in its version 13.0.

Participants: The management reports of 1141 federal institutions made available by the Federal Court of Accounts and their respective websites for the year 2019 were analyzed. In the case of institutions that prepare the Sustainable Logistics Management Plan or adhere to the Environmental Agenda in Public Administration (A3P), they were also investigated. 21 points were identified in the Management Reports, 05 points in the Sustainable Logistics Management Plans; 06 points in the Environmental Agenda in Public Administration and 04 points in sustainable tenders. From the analysis of the checklist, an indicator and the ranking of institutions with greater adherence to the decisions of the Federal Court of Auditors was raised. Institutions with a score greater than or equal to 7 (23 in total) and institutions with a score equal to zero (26 in total). The membership term is valid for a period of 5 (five) years. In this research, 43 federal institutions with active membership terms in the A3P in 2019 will be studied. The survey will use the Public Sector Social and Environmental Transparency Indicator (ITSA). In this study, the indicator will be built into four groups: Management Report; Sustainable Logistics Management Plan; A3P and Sustainable Bidding. The institutions listed in Normative Decision - TCU No. 183 were analyzed, totaling 1167 reports. The management reports were obtained from the TCU website < https://contas.tcu.gov.br/econtas Web/web/externo/ listar Relatorios Gestao.xhtml>. However, the reports of 26 institutions were not available on the website until August 1, 2021. The manifestation sent to the TCU Ombudsman on 11/30/2020 - 15:29 pm was registered with the number 334940 in the request made to TCU.

The Ombudsman stated that the reasons for the absence of the desired institutions from the list occur for one of the following reasons:

- The institution has a different name in the list of jurisdictional units that are accountable or;

- The institution was not selected to report in the year 2019 or;
- The institution was not under the jurisdiction of the TCU in 2019 (articles 70 and 71 of the Federal Constitution).

The management reports of 1141 institutions and their respective websites were analyzed. In the cases of the institutions that prepare the Sustainable Logistics Management Plan, they were also investigated. The points to be identified in the Management Reports were: Pre-textual elements; Governance, strategy and resource allocation; Risks, opportunities and perspectives. Information regarding the Sustainable Logistics Management Plans, sustainable bids and A3P (43 institutions with active adhesion term) were observed on the websites.

With the use of mechanistic content analysis and data checklist, the aim is to create a transparency indicator of social and environmental responsibility in the public sector. Indexes that have many components tend to lack transparency and a shorter lifespan. There is a need to seek other means of composing the central elements of the indicators (BARRINGTON-LEIGH and ESCANDE, 2018). Thus, the indicator, the Public Sector Social and Environmental Transparency Indicator (ITSA), was created, as shown below:

On what:

RG is composed of 23 requirements and s is the weight of each requirement (2.0);
A3P is composed of 6 requirements and t is the weight of each requirement (2.0);
LS is composed of 4 requirements and u is the weight of each requirement (2.0)*;*
PGLS consists of 5 requirements and w is the weight of each requirement (2.0)
Thus, equations 1 and 2, below, present the Public Sector Socio-environmental Transparency Index (ITSA) model.

 Federal Institutions:

$ITSA_1 =$

$$[\sum_{l=1}^{23} RG\,(t) \sum_{l=1}^{6} A3P\,(u) + \sum_{l=1}^{4} LS\,(v) + \sum_{l=1}^{5} PGLS\,(w)]$$

Equation 1 shows the numerical result of the adherence indicator and the socio-environmental indicators for each studied organism. The creation of the indicator makes it possible to present a mechanism for measuring the administrative and socio-environmental responsibility of public bodies. The result will allow the generation of a ranking of the organizations that had greater adherence, mainly to the A3P program. Then, it will be possible to separate the organisms into four groups, by means of quartiles, namely: High Level of Adherence; Medium High Level of Adherence; Low Medium Level of Adherence; Low Adhesion Level. Based on these results, an analysis of the representativeness of the institutions was carried out.

Among the 43 institutions with active adhesion term, 08 of them are the Federal Institute of Education, Science and Technology together with the Federal Center for Technological Education Celso Suckow da Fonseca (Cefet/RJ) and 10 of them are universities corresponding to the majority of the group of institutions. Universities and federal educational institutes, totaled 18 institutions and represent the group with the greatest representation in the A3P.

In this second stage of the research, a quantitative study will be carried out with all the Federal Institutes of Education, Science and Technology and the universities listed on the TCU list (Normative Decision - TCU nº 183).   With the use of mechanistic content analysis and Checklist of data obtained via active transparency, the aim is to create a transparency indicator of social and environmental responsibility in the public sector.
Variable descriptions

Research hypotheses: The hypotheses to be tested are related to the discussions about the theory of disclosure pointed out by Braga, Oliveira and Salotti (2009).

H0: The budget transferred to the institution does not positively influence the adherence of the integrated report

H1: The current costs per student (highest) in the IFES positively influence the adherence of the integrated report

In this analysis, a quantitative study will be carried out with the Federal Institutes of Education, Science and Technology and universities, totaling 102 observations. Data from this sample were obtained from their respective management reports for the year 2019. The Management Report is currently being used as an instrument of accountability that must be sent to TCU. Its adoption in the Integrated Report format is an opportunity for managers to present the results achieved with the application of resources that were placed under their responsibility and under their management in a clear, concise and reliable manner. This information, in addition to being evaluated internally and externally, is used by society to debate how public management can improve the quality of accountability, making information more effective and transparent. For the analysis, the Cross Section linear regression technique was used. For all analyses, the significance level used was 0.05.

The linear regression model used in this study was:

Integrated Reporting (ranking) $= \alpha + \beta_1$ budgetreceived $+ \beta_2$TSG $+ \beta_3$IGC $+ \beta_4$A3P $+ \beta_5$ currentcost $+ \beta_6$ITCD $+ \mu_{-1}$

Regarding data treatment, the statistical software used for econometric analyzes was the Software for Statistics and Data Science® – STATA in its version 13.0. The Ordinary Least Square (MQO) Model was used. Next, an analysis of three basic assumptions was performed, according to Gujarati and Porter (2011). The Normality of Residues Assumption, which was observed by the test for the null hypothesis of normal distribution. The Waste Homoscedasticity Assumption was identified by the Breusch–Pagan test for OLS heteroscedasticity. Finally, the Collinearity Assumption was analyzed by the Variance Inflation Factors (VIF).

Mann☐Whitney U Test: Initially, mean difference tests (Mann-Whitney U) were used to verify whether there were statistically significant differences between the representative variables in the case of Institutions with a term of adherence to the A3P and those that do not have this term of adherence with the A3P. The Mann-Whitney U test was used since the Shapiro Wilk tests indicated that the data were not normally distributed.

The following hypotheses were tested using the difference test:

H2 – There are no mean differences in the analyzed variables of the IFESs with term of adherence in the A3P

H3 – There are mean differences in the analyzed variables of the IFESs with term of adherence in the A3P

RESULTS

The Mann-Whitney U test is used to compare whether there is a difference in the dependent variable for two independent groups (WILCOXON, 1945; HALPERIN, 1960; MANN and WHITNEY, 1947). The tests differences of means were by separating the sample into two groups.

- Educational institutions that are part of the A3P.
- Educational institutions that are not yet part of the A3P. The variable was no significant.

Table I. ITSA Weights and Proportion for Federal Institutions

DIMENSION	NUMBER OF REQUIREMENTS	WEIGHT	PROPORTION
1. Management Report	23	2	0,605
2. Sustainable Logistics	5	2	0,132
Management Plan			
3. A3P	6	2	0,158
4. Sustainable Bidding	4	2	0,105

Source: Author's elaboration (2020) from research data

Table II: Operational Description of Variables

Variable	Description	Source	Expected signal
BUDGET RECEIVED	Resources received by institution i in year t	Management report (integrated report) and TCU (2010)	Revenue (+) Gallego-Álvarez (2010)
TSG	Graduation success rate	Management report (integrated report) e TCU (2010)	TSG (-) Silva *et al* (2017)
IGC	General index of courses	Management report (integrated report) and Inep	IGC (+) (Dombroski *et al* (2019)
A3P	1 – There is an adhesion term; - 0 has no membership term	Ministry of the Environment	-
CURRENTCOST / STUDENT	Current cost per student	Management report (integrated report) and TCU (2010)	Current cost (+) Barbosa *et al* (2011)
ITCD	Faculty Title Indicator	Management report (integrated report) and TCU (2010)	ITCD (+) Barbosa *et al* (2011)

Table III. A3P Dimensions

DIMENSION	OCCURRENCES	NUMBER OF REQUIREMENTS	WEIGHT	PROPORTION
Level 0	978	38	2	56,1 %
Level 1	37	38	2	2,1 %
Level 2	730	38	2	41,8 %
Total Level	1745	38	2	100%

Source: Author's elaboration (2020) from research data

Table IV: The dimensions of other institutions

DIMENSION	OCCURRENCES	NUMBER OF REQUIREMENTS	WEIGHT	PROPORTION
Level 0	20458	32	2	63,93 %
Level 1	704	32	2	2,20 %
Level 2	10839	32	2	33,87 %
Total Level	32001	32	2	100%

Source: Author's elaboration (2020) from research data

Table VI. Test of means

Over	*Mean*	Test of means		
BUDGETRECEIVED				
0	20,02551	-0,1738	value	(a)
1	20,06021	0,8624	Sig	
TSG				
0	28,49167	-0,961	value	(a)
1	25,26222	0,3389	Sig	
IGC				
0	3,231392	-1,088	value	(b)
1	3,353445	0,2764	Sig	
INTEGRATEDREPORTING				
0	29,29762	-0,7073	value	(a)
1	30,61111	0,481	Sig	
CURRENTCOST				
0	9,838555	0,6593	value	(a)
1	9,795328	0,5112	Sig	
ITCD				
0	4,30381	-0,4185	value	(a)
1	4,341667	0,6765	Sig	

a Applied t-test because the distribution was normal
bapplied the Mann Whitney U test since the distribution was not normal

On average there is no statistical difference between these two groups. There is no difference in the analyzed metrics of institutions with A3P compared to those that have not yet adhered to A3P. The following hypotheses that were tested using the difference test:

H2 (there are no mean differences in the analyzed variables of the IFESs with the A3P adherence term) and H3 (there are mean differences in the analyzed variables of the IFESs with the A3P adherence term) point to not rejecting hypothesis 2, as there are no significant differences between the two analyzed groups.

Quadro VII. Regression

VARIABLES	(1) INTEGRATEDREPORTING
BUDGETRECEIVED	-2.045*
	(1.130)
TSG	-0.0469
	(0.0363)
IGC	-0.327
	(3.050)
A3P	1.366
	(1.847)
CURRENT COST	4.444
	(3.136)
ITCD	2.619
	(3.527)
Constant	17.65
	(39.29)
Observations	102
R-*squared*	0.104

Standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table VIII. Normality Test

Variables	Obs	W	V	Z	Prob > z
INST	0	.	.	.	.
BUDGETRECEIVED	102	0.98555	1.213	0.429	0.33394
TSG	102	0.89524	8.794	4.828	0.00000
IGC	102	0.98614	1.163	0.336	0.36848
INTEGRATEDREPORTING	102	0.98231	1.485	0.878	0.18995
A3P	102	0.93128	5.768	3.892	0.00005
CURRENTCOST	102	0.98793	1.013	0.029	0.48862
ITCD	102	0.98656	1.128	0.268	0.39429

Source: Author's elaboration (2020) from research data

Table IX: Heteroscedasticity Test

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of INTEGRATED REPORTING
chi2(1)   =   1.14
Prob > chi2 =   0.2848

Source: Author's elaboration (2020) from research data

Table X: Variance Inflation Factors (VIF)

VARIABLE	VIF	1/VIF
IGC	4.64	0.215743
ITCD	3.12	0.320464
TSG	1.71	0.583288
BUDGETRECEIVED	1.56	0.641440
CURRENT COST	1.30	0.769845
A3P	1.04	0.958111
Mean VIF	2.23	

Source: Author's elaboration (2020) from research data

Table XI. Attributions with the A3P

ATTRIBUTIONS	Number of Institutions that advertise on the websites
3.1 A3P Adherence Term - Third Clause I - a) commission that will be responsible for the implementation of the actions	05
3.2 A3P Adhesion Term - Third Clause I - c) strategic action plan	05
3.3 A3P Adherence Term - Third Clause I - e) methodology for performance measurum	03
3.4 A3P Adherence Term - Third Clause I - g) periodic evaluation of the implementation of actions	06
3.5 A3P Adherence Term - Third Clause I -h) training of the "socio-environmental educator server"	02
3.6 A3P Adhesion Term - Third Clause I -i) Technical Report explaining the implemented actions	06

Source: Author's elaboration (2020) from research data

The model does not have VIF multicollinearity problems less than ten. Regression data below

Quadro VII: Regression

Significant model. The only variable that showed significance was the Passed Budget variable. This variable has a negative relationship with Integrated Reporting. Significant to 10%. R² adjusted 4%. (There are some variables related to teaching indicators that can help explain adherence to integrated reporting and also other variables that are not related to the quality of teaching or to students that affect RI. R² low 10.4%. These variables explain 6% of the integrated report (they are not determining variables, they can have an influence). Regarding the

hypotheses: H0 (the budget transferred to the institution does not positively influence the adherence to the integrated report) and H1: The highest current costs per student in the IFES positively influence the adherence to the integrated report. These results indicate not to reject hypothesis 0 and to reject hypothesis 1.

Normality Test

Heteroscedasticity Test: There is no problem of heteroscedasticity. The collinearity assumption was analyzed by the Variance Inflation Factors (VIF). In the analysis carried out with the A3P institutions (43 institutions) we found that some institutions do not make available on their websites actions related to their attributions with the environmental agenda. The disclosure obligation set out in the membership terms is not being fulfilled. This flaw needs to be fixed. Thus, a detailed investigation will confirm whether the problem is the lack of publicity of the socio-environmental acts or the non-compliance with the obligations established in the adhesion term by the institutions involved.

CONCLUSION

The considerations point to the potential of Integrated Reporting as a decision-making instrument and also highlight its role as an enhancer of better management practices. The adoption of RI goes beyond transforming voluminous reports into concise information and investigation from the perspective of materiality and relevance of topics for the organization. The Management Report is currently being used as an instrument of accountability that must be sent to TCU in the integrated report format, however, most institutions have not yet managed to actually prepare an integrated report. The result of the work will help public managers in the execution of social and environmental items, as well as enable a better assessment of the effectiveness of the A3P program and in the preparation of the Management Report. The application of institutional theory and the theory of legitimacy in the social and environmental management of the public sector seeks to make a more effective contribution to government reality. Federal institutions of higher education can play an important role in many sustainability initiatives, providing credibility, technical and scientific support and contributing to greater social participation based on their physical and intellectual structure. Their notability is undeniably effective in engaging the student body to be critical and participatory. It is important to emphasize that all the potential and effort must also be directed towards the extension work that involves the formation of individuals beyond the university walls, promoting interactivity between academia and society. Empirical evidence indicates that the budget transferred to the institution does not positively influence adherence to the integrated report. There is no statistical difference in the analyzed metrics of IFESs with A3P compared to those that have not yet adhered to A3P. Thus, there are no statistically significant differences between the academic performance of institutions that have an active adhesion term with the A3P.

In the statistical study, we identified that other indexes should be listed in the management report to explain the fact that some institutions present a larger set of items in the management report and others do not. Thus, we suggested that reliable information such as the size of institutions, number of servers allocated to administrative sectors and the "Index of titling of the administrative body" should also be part of TCU's requirements in future management reports. With more data about the team that prepares the management report and the application of other control variables, we could create a statistical model with more details and thus improve the model that explains the factors that influence the fulfillment of TCU's requirements in the management reports. Like any other research, this work is not without limitations. Some companies that obtained a lower score did not comply with passive transparency and, due to the distance, it was not possible to carry out the interview in person. The previous works present the countless benefits that RI can offer, without, however, neglecting to be careful about the necessary

prerequisites for building the foundation that will serve as a basis to accommodate and nurture the expectations of this communication proposal. These assumptions already guided and surrounded the doctrines of New Public Management.

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