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IMPACTS AND CHALLENGES OF ESOCIAL IN THE ACCOUNTING ENVIRONMENT: AN ANALYSIS FROM THE PERSPECTIVE OF CONTINGENCY THEORY

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ABSTRACT

In an increasingly technological world, accounting professionals cannot be left behind and must be constantly updated. An example of this advance is eSocial, a tool created by the Federal Government in the SPED project to submit labor information. Thus, both the accountant and the supervisory bodies needed to adapt to this reality and the internal and external environment. Thus, the study aimed to analyze the perception of accountants about the effects of contingency variables in the implementation of eSocial. The sample involved 103 accountants enrolled in the Regional Accounting Council of the state of Santa Catarina (CRC/SC), predominantly female. Data were analyzed using descriptive statistics, information entropy, and Pearson correlation. The results show that most respondents agree that their work environment has undergone organizational restructuring and cultural changes. Still, they are not sure about the impact of the implementation of eSocial by the government or that they are 100% prepared to manage the information generated by eSocial. Regarding the technology contingency variable, accountants believe it helps communicate between accounting and the tax authorities and between accounting and companies. Still, it also partly bureaucratizes the implementation of eSocial. It was also possible to observe that there is no agreement on the lack of technological improvement by the government, and most do not believe that the accounting software they use helps in submitting the eSocial. There was a mean relationship between the contingency variable that makes up the environment and the implementation of eSocial. It was possible to perceive a mean relationship between the technology contingency variable and the implementation of eSocial. Given the above, it can be concluded that contingency factors, even if moderately and even if often without the knowledge of accounting professionals, are present in accounting offices, especially in the implementation of eSocial. Thus, the study contributes to the scarcity of research linking contingency theory with eSocial. And yet, in a complementary way, it contributes to the government seeing through the eyes of accounting

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professionals what were their main difficulties with eSocial and their critical view of the government's management of this data.

Keywords: Contingency Theory. Technology. Environment. eSocial. Accountants.

1 INTRODUCTION

For Reis and Pereira (2007), the Contingency Theory was of great importance for studies focused on accounting, as it analyzes people's behavior in organizations and how they interact with the internal and external environment. Thus, the Contingency Theory recommends analyzing how certain specific circumstances (structure, environment, strategy, technology, etc.) affect and transform organizational systems (Beuren & Macohon, 2016). Thus, the theory presents that each company is unique, and some factors can influence it. Guerreiro et al. (2006) show that, in summary, the contingency factors that are particularly impactful in influencing the organizational structure of companies are size, technology, and environment.

Companies in more complex environments (several governmental changes, changes in laws, various suppliers, high competition, etc.) must regularly study the environment and update themselves, inserting differentiation in their businesses (Guerreiro et al., 2006). Moreover, the process of innovation and constant technological evolution ends up reflecting daily life in various sectors, such as economic, political, social, and cultural (Zwirtes & Alves, 2015; Franco et al., 2021).

Therefore, accounting 4.0 appears directly linked to the fourth Industrial Revolution, as they combined several technologies that began integrating several accounting tools, such as the emergence of SPED (Mata et al., 2018; Franco et al., 2021). The advent of the Public Digital Bookkeeping System (SPED) was instituted by the Federal Government and facilitated the communication of companies with supervisory bodies (Novaes & Bucker, 2010; Cordeiro & Klann, 2015).

Thus, SPED is in the final phase of implementing one of its modules, eSocial (Digital Bookkeeping System for Tax, Social Security, and Labor Obligations), established by Decree No. 8.373/2014 of the Federal Government (Röhers & Kappel, 2019). With this system (eSocial), companies inform the Government and supervisory bodies of all information of their employees and taxpayers in a unified manner, such as admission, social security contribution, payrolls, vacations, compensation, communication of occupational accidents, tax deeds, and information on the FGTS (Length-of-Service Guarantee Fund) (Caon & Nascimento, 2017; Almeida et al., 2020; Receita Federal, 2022).

Studies directly or indirectly involving the Contingency Theory with regard to the environment and information technology have been developed with an emphasis on investigating the opportunities and challenges caused after the implementation of SPED (Reis et al., 2021), advances in information technology systems (accounting *software*, ERPs, SPED) in the accounting environment (Franco et al., 2021), government bureaucratization and contingency factors such as the environment, technology, strategy, structure, and organizational size (Beuren & Macohon, 2016; Beuren & Fiorentin, 2014), identifying that, among the contingency variables, technology and the environment are directly influencing the accounting routine. Therefore, the differential of this research is the link between contingency theory and accounting, verifying whether environmental and technological factors influence the accounting environment, more specifically, the labor area, personnel department, and HR.

For example, Almeida et al. (2018) studied the changes in habits and routines in management controls caused by SPED, identifying that there was a greater investment in human and technological resources in the organizational environment. Other studies have analyzed the challenges and impacts caused by the implementation of eSocial. Conceição et al. (2020) analyze

the challenges of accounting organizations about eSocial, stating that organizations see eSocial positively, as it integrated customers with accounting professionals and made them work more correctly.

Dantas et al. (2021) found that professionals are in search of knowledge and continuously updating in the face of the changes that the eSocial platform presents since it is frequently updated. As seen in studies on SPED, it is noted that the changes resulting from the implementation of eSocial can be impacted by external (government, customers, regulatory agency, etc.) and internal (information technology, structure, etc.) events.

Therefore, based on the above, the research question is: *What is the perception of Santa Catarina accountants about the effects of contingency variables on the implementation of eSocial?* The study aimed to analyze the perception of accountants about the effects of contingency variables in the implementation of eSocial.

This study contributes to the literature by empirically addressing the environment and technology contingency variables that can be influential agents in the implementation of eSocial when it is understood that the company is an open environment that, in order to maintain itself, must interact with the environment and must be inserted in technological changes. Röhers and Kappel (2019) emphasize the importance of studies related to the advancement of eSocial implementation, studying measurement variables different from that used by them, which was "knowledge."

Conceição et al. (2020) also recommend studies that identify the difficulties found by the accounting environment in the implementation of eSocial, as well as Dantas et al. (2021), who highlight the relevance of identifying, after implementing all phases and complete submissions of the five types of events by each group of entities required to submit their information to eSocial, the impacts, and challenges perceived by accounting offices, which demonstrates practical relevance since the results may be helpful for accounting and regulatory bodies, to verify, through the eyes of professionals working in the accounting area of Santa Catarina, what was the impact of eSocial on their routines.

According to Backes (2023), Santa Catarina has approximately 22,000 professionals registered with the Regional Accounting Council (CRCSC) and about 5,000 registered companies. Therefore, there is a need for studies involving technology, the demands pertinent to eSocial, regional characteristics, and the link between accounting offices and customers regarding the necessary adequacy to the constant changes that fall daily on the personnel department.

Therefore, the research is vital due to the various technological advances and the speed at which they are transformed, making the accounting area constantly evolving in the face of technology. Concerning the environment, the company does not exist without its external and internal agents, so any variation in them also affects the organization. Through this study, accounting offices will be able to verify whether contingency factors influence the implementation of eSocial and to what extent they can control, improve, or ignore these factors. According to Ferreira (2016), these changes can impact the relationships in the daily lives of organizations and also change some obligations and rights of companies.

2 THEORETICAL FRAMEWORK

2.1 Contingency Theory

According to Beuren and Macohon (2016), the Contingency Theory suggests that the performance of an organization oscillates according to immeasurable variables, such as the organization's size, environmental uncertainty, and the advancement of technology. The objective of this theory is to understand and explain the adaptation of organizations to an uncertain environment, with changes in technology and market, how the company is structured according to

contingency factors, and how they act in different situations and conditions (Scheffel et al., 2012; Beuren & Fiorentin, 2014).

Waterhouse and Tiessen (1978) argue that efficient companies have their structure changed according to factors such as technology and environment. For Beuren and Fiorentin (2014), the environment is an extrinsic factor of the organization, which, from the moment that the company's internal environment changes due to changes in the external environment, processes must be restudied to minimize these impacts. One can understand the environment in two scenarios: general external and task environments. The first one has the government, the economy, and legal, cultural, and social issues. In the second, one can have customers, suppliers, competition, etc. (Fonseca & Quel, 2016; Chiavenato, 2021).

Espejo et al. (2009) expose the need to identify and understand the factors that influence accounting because it is inserted in a constantly changing environment, which is challenging for companies. It also adds that in a contingency view, the environment is one of the most dynamic components in the decision-making process, in which the relationship between accounting and the environment is very complex, as there are factors that are part of this, such as externally, customers, suppliers, the scarcity of raw materials and/or labor, the government, unions, among others. Internally, there are employees, partners, culture, organizational structure, etc.

In the same way as the environment, technology is also seen as a contingency factor in organizations. The technological factor can be compiled from accumulated knowledge, intellectual intelligence (know-how), physical technology such as hardware, machinery, and equipment, and even projects, patents, and software. Changes related to communication and information transformation are crucial for the accounting professional. The emergence of the Internet, the use of computers interconnected by a network, and the transmission of information have revolutionized and generated structural changes in organizations (Borges & Miranda, 2009).

Among the changes, new accounting facts can be mentioned, which, due to technological advances, required greater preparation of professionals to adapt the rules of existing accounting records to unpublished accounting facts. And the professional readjustment to the new tools for conducting the work done manually, adapting to the most sophisticated and modern ways of recording the companies' assets (Mata et al., 2018; Almeida et al., 2020).

According to Gera et al. (2013), with these technological advances, most accounting processes began to be produced digitally, and not being left behind, the tax authorities also presented their digitalization initiative in the face of all these changes, which further led the accounting area to adapt to new technologies. It is called inspection of the future, in which technology comes into play to reduce tax evasion and control tax collections, bringing homogeneity to the inspection application.

Besides integrating the tax authorities with the taxpayer, the Internet has become a means of communication, in which most communications from public agencies occur via the Internet. It has also become a means of disseminating information and research for accountants. Thus, technological changes and advances have made the work more agile, in which everything takes place via forms or corrections submitted via the Internet, without having the obligation to make reservations in physical documents (Novaes & Bucker, 2010; Almeida et al., 2020).

Thus, given the numerous innovations in systems and supervisory bodies, accounting professionals needed to develop skills focused on information technology (Gera et al., 2013; Rosa, 2014). Facing this scenario, the new accountant is formed: in addition to the great knowledge for practical application, they need this multifaceted face and the ability to absorb and learn from new technologies, which will increasingly be in everyday life (Oliveira & Malinowsky, 2017).

Therefore, according to Dantas et al. (2019), all technological advances changed organizations' routines, facilitating them and creating new systems and methodologies to make processes effective. One of these advances was the creation and implementation of eSocial by the

Federal Government, which changed the submission of ancillary obligations related to employees through accounting office's using this technological tool.

2.2 Implementation of eSocial

Faced with the adaptations of the environment (internal and external) and technological advances, the Tax Authorities and the government could not stagnate in time. It was then that on January 22, 2007, Decree No. 6.022 was approved, which instituted SPED (Public Digital Bookkeeping System), which was presented as another step of computerization in the taxpayer and Tax Authorities relationship (Oliveira et al., 2017; Röhers & Kappel, 2019; Receita Federal, 2022).

Therefore, what changed with the advent of SPED in accounting was the transmission and submission of ancillary obligations to supervisory bodies, supported by digital certificates, which are digital signatures of those responsible for the statement, thus ensuring their legal validity. Thus, what would need to be printed and signed manually and still be filed for future inspections of the companies is now an exported file of the Accounting Software in the specific and standardized layout that is transmitted via SPED environment, all in almost real-time, which generated significant changes in the routine of accountants (Cleto, 2008; Sasso & Rosa, 2011; Oliveira et al., 2017; Receita Federal, 2022).

In SPED's activity area, there is eSocial (Digital Bookkeeping System for Tax, Social Security, and Labor Obligations). Approved on December 11, 2014, with Decree No. 8,373, it emerged to reduce bureaucracy in submitting the ancillary obligations of the labor part of the accounting, which involve registration, contractual, termination, leave, compensation, social security, tax, and FGTS information. All this information is submitted via accounting software because, in some cases, it needs to be submitted immediately, and it is through this system that the supervisory agencies have access to the information of their interest (Röhers & Kappel, 2019; Machado, 2021; Governo Federal, 2022).

According to Machado (2021), one of the main objectives of this system (eSocial) is to ensure the right of workers and centralize all labor information in a single system, which until then was submitted by several systems, according to the definition of each entity, thus unifying the ancillary labor obligations, so that it eliminates the redundancy of statements, simplifying, streamlining, and modernizing the labor environment (Governo Federal, 2022).

The implementation of eSocial requires knowledge not only of the submission platform but also about labor laws, social security calculations, among other technical knowledge, to trust and provide the necessary and correct information to the Tax Authorities (Röhers & Kappel, 2019). Also, according to Filipin et al. (2016), eSocial presented a cultural change in companies, as they needed to invest in specialized technologies and software to submit this obligation.

The responsibility for submitting the eSocial in accounting is from the Human Resources (HR) and Personnel Department (PD). According to Oneda and Martins (2021), these areas are responsible for all eSocial events linked to the labor part, leaving them on the inspection axis. With this, eSocial came to break the old customs adopted by companies, to leave everything to the last minute, or even to submit documentation in arrears or retroactively. This is because submitting events, such as admissions, leaves, vacations, and terminations, is almost momentary and needs to be transmitted to eSocial on time, and may incur fines if not complied with.

According to Silva et al. (2020), for eSocial to obtain full use, the professional must be aware of and up to date with everything that involves the eSocial mandatory nature and is qualified for this function. However, the employer also needs to be aware of the eSocial deadlines and procedures, not only the monetary penalties they will suffer if they do not submit this information; it is collaborative work between the employer (companies) and the accounting offices, specifically, the personnel department. Thus, several procedures in the personnel department were achieved,

their routines changed, the charge for deadlines became even more significant, and the contact of customers with accounting increased (Oneda & Martins, 2021).

Dantas et al. (2021) state that the eSocial platform undergoes constant changes and that it is up to the professionals in the area to always remain aligned with them. With this comes the restlessness of professionals in this area and several questions about the future, such as, for example, what else would be coming in this area? This is impossible to answer since labor updates are almost daily, and technological advancement does not stop, leading us to believe that updates will not stagnate.

3 METHODOLOGICAL PROCEDURES

The research is characterized as quantitative, descriptive, and survey. The sample comprises 103 accountants registered with CRC/SC, of which 56 were females (54.4%) and 47 males (45.6%), with between 6 and 20 years of experience in the accounting area. This public is justified since this research focuses on the environment (internal and external), technological innovations, and the implementation of eSocial involving the labor area within accounting offices. Thus, the sample is non-probabilistic by accessibility.

The instrument used for data collection was the questionnaire, with three constructs being prepared, in addition to the first part that refers to the respondents' characterization. The block of questions named "eSocial and Environment" deals with issues in which the environment may or may not have affected the implementation of eSocial; these questions were based on the studies by Röhers and Kappel (2019), Dantas et al. (2021), and Reis et al. (2021). The second block, entitled "Changes of eSocial," has questions based on the research of Oliveira et al. (2017), Conceição et al. (2020), Dantas et al. (2021), and Reis et al. (2021), assessing the impacts and changes in routine with the implementation of e-Social.

The last block, entitled "eSocial and technology," presents questions based on the studies of Donaldson (2001), Beuren and Macohon (2016), and Reis et al. (2021), which deal with how and if the advancement of technology systems impacted the implementation of eSocial. The responses to all questions in the survey instrument were suggested based on the Likert Scale from 1 to 5, with 1 for strongly disagree and 5 for strongly agree.

Notably, the questionnaire underwent a pre-test in September 2022, involving six participants, three university professors, and three labor and/or personnel department professionals. The pre-test allowed the reformulation and improvement of statements and terms that were not clearly exposed, such as, for example, changing the word "deployment" for "implementation," removing the term "Contingency Theory" in the form, aiming to simplify the understanding; the standardization of the words "labor legislation" and "information technology," as well as excluding some questions with double meaning.

The CRC/SC was initially contacted via email to apply the questionnaire when a date and time for sending the instrument was scheduled. Attached was the link to access the questionnaire developed on the Google Docs platform. Thus, the link was forwarded to the registered accountants on October 21, 2022. Responses were also collected using the snowball technique, which, according to Costa (2018), is a technique in which the proposal is forwarded to the people who fit the initial sample. After that, these initial participants are asked to indicate people who belong to the same target group, repeating the process until a considerable sample is reached.

Thus, this technique was used through the LinkedIn platform, in which it was possible to filter and connect with accountants registered with CRC/SC, still via email, directing emails to the region's accounting offices, as well as through WhatsApp, Instagram, and Facebook. On all platforms, the survey was directed specifically to the person responsible for accounting through direct chat. The application of the snowball technique was motivated after CRC/SC submissions to obtain a larger sample. In the sent message, it was highlighted that the aforementioned body had

already sent the same survey. If it had already been responded to, they should disregard the message. The questionnaire was applied in October and November 2022 (until 11/11/2022).

Data were tabulated in *Microsoft Excel* spreadsheets. To test the reliability of the constructs, the Cronbach's Alpha coefficient was calculated. It was observed that the constructs are reliable because they present values above 0.81, as recommended in the literature. Information entropy and Pearson correlation were applied to analyze the relationship between contingency factors (environment and technology) with the implementation of eSocial using the SPSS software. Calculating entropy needs a reference value, which, in the case of this research, will be the Likert scale from 1 to 5. Therefore, entropy indicates how much information a question has, and if everyone answers 5 (totally agree), there is no entropy because it follows the author's perspective. Nunes et al. (2004) confirm that the entropy value will be high in data with a large probability distribution. Otherwise, the entropy value will be low in data with a small distribution.

Rocha (2010) presents that the entropy formula is represented by: $d_i = \left(d_i^1, d_i^2, ..., d_i^m\right)$ being the normalized values, where: $d_i^k = \frac{x_i^k}{x_i^*}$ characterizes the set D in terms of the i-th attribute. It is defined $D_i = \sum_{k=1}^{m} d_i^k ; i = 1,2,..., n$. The intensity contrast entropy measure for the i-th attribute is calculated by $e(d_i) = -\alpha \sum_{k=1}^{m} \frac{d_i^k}{D_i} Ln\left(\frac{d_i^k}{D_i}\right)$, where $\alpha = \frac{1}{e_{max}} > 0$ and emax=Ln(m). Remembering that $0 \le d_i^k \le 1$ and $d_i^k \ge 0$.

If d_i^k is equal for a given i, then $\frac{d_i^k}{D_i} = \frac{1}{n}$ and e(di) takes maximum value, emax=Ln(m). When fixing $\alpha = \frac{1}{e_{max}}$, it is determined $0 \le e(d_i) \le 1$ for all di's. This normalization is necessary for comparative effect.

The total entropy of D is defined by: $E = \sum_{i=1}^{n} e(d_i)$. The higher e(di) is, the lower is the information transmitted by the i-th attribute, and if e(di)=emax=Ln(m), the i-th attribute does not transmit information and can be removed from the decision analysis. Because the weight $\tilde{\lambda}_i$ is inversely related to e(di), 1-e(di) is used instead of e(di) and normalizes to ensure that $0 \le \tilde{\lambda}_i \le 1$ and $\sum_{i=1}^{n} \tilde{\lambda}_i = 1$. In this sense, the information entropy can be represented: $\tilde{\lambda}_i = \frac{1}{n - E}\left[1 - e(d_i)\right] = \frac{\left[1 - e(d_i)\right]}{n - E}$.

Any dynamic change that occurs in X or D can distance the decision from the "ideal" point. This scenario can introduce changes in di's that correspondingly cause changes in relative contrast intensities.

For Pearson's correlation, the mean scores were calculated via Microsoft Excel for each respondent in each construct. For Figueiredo Filho and Silva Júnior (2009), Pearson's correlation is a measure that makes the linear association between variables. This means that if the association

between the variables is linear, the coefficient will be represented appropriately, showing correlation. The authors also present that values from 0.10 to 0.29 are weak; scores between 0.30 and 0.49 show a mean correlation, and values between 0.50 and 1 are perfect.

4 DATA DESCRIPTION AND ANALYSIS

4.1 Information entropy attributed to the environment variable

To verify which questions presented the greatest variability in the responses for the environment variable in the context of the eSocial implementation in the accounting environment, the information entropy was calculated, as shown in Table 1.

Table 1
Information entropy involving the environment contingency variable

Questions	Entropy	Weight of the Question	Mean
Q1 - There was a cultural change in customers to comply with eSocial requirements	0.9952	0.0753	4.11
Q2 - There was organizational restructuring of customers to comply with eSocial requirements	0.9935	0.1016	3.93
Q3 - There was a cultural change in the accounting office to comply with eSocial requirements	0.9976	0.0379	4.57
Q4 - There was organizational restructuring of the accounting office to comply with eSocial requirements	0.9963	0.0574	4.39
Q5 - The Federal Government is 100% prepared to manage eSocial information	0.9847	0.2379	2.84
Q6 - There was constant influence of the government to implement eSocial	0.9898	0.1595	3.73
Q7 - Delays and postponements in the implementation of eSocial by the government impact the routine of the personnel department	0.9934	0.1033	4.25
Q8 - There was a certain difficulty in monitoring and understanding the constant changes in labor legislation on eSocial	0.9938	0.0968	3.97
Q9 - eSocial caused a more dynamic environment for accounting service providers	0.9916	0.1303	3.84
Total	**8.9358**	**1.0000**	**2.74**

Source: Research data.

It can be seen that the highest mean of respondents focused on statements Q3, “there was a cultural change in the accounting office to comply with eSocial requirements,” and Q4, “there was organizational restructuring of the accounting office to comply with eSocial requirements.” This can be explained by the change that eSocial was in accounting offices since it replaced several statements, unifying the information, as emphasized in the study by Oliveira et al. (2017), who highlight that the statements still exist but were integrated into a single system, facilitating the inspection of entities, which required many cultural and organizational changes, converging with what the Contingency Theory advocates.

Regarding the information entropy, the values presented are related to the amount of information obtained by the statement. Thus, the higher the entropy value, the lower the information transmitted (Beuren et al., 2013). Therefore, it is possible to verify that statement Q3, “there was a cultural change in the accounting office to comply with the requirements of eSocial,” presents the highest entropy value, followed by statement Q4, “there was organizational restructuring of the accounting office to comply with the eSocial requirements,” which represents less information transmitted by this statement, that is, there is greater certainty about this item.

According to the respondents, these data suggest that most believe there have been cultural changes in the offices, along with organizational restructuring to meet the eSocial requirements.

The data converge with the study by Rodrigues et al. (2018), who identified in the accounting offices the need for meetings, team training, change in internal procedures, and the creation of booklets with new procedures that needed to be adopted by employees to fulfill the obligations of eSocial, thus changing the context of the internal environment of many accounting offices.

In contrast, statement Q5, "the Federal Government is 100% prepared to manage eSocial information," has the lowest entropy value, followed by statement Q6, "there was constant government influence to implement eSocial." This indicates that more information is extracted from this statement. It assumes that respondents are not sure that the government is 100% prepared to manage eSocial information and also do not believe there was constant government influence at this implementation stage. These data differ from Almeida et al. (2020), who state that the various changes made in the government's eSocial implementation schedule caused the implementation of eSocial to spread longer than expected and made it difficult for accounting organizations to prepare for this change.

However, the statements of lower weight – Q3 "there was a cultural change of the accounting office to comply with the eSocial requirements" and Q4 "there was organizational restructuring of the accounting office to comply with the eSocial requirements" - reveal that respondents agree that there was a cultural and organizational change for implementing eSocial in accounting offices, which converges with the research by Röhers and Kappel (2019), in which they identified that respondents believe that these changes have occurred. However, when there is more knowledge regarding eSocial, these cultural and organizational changes in the offices become easier, a fact that recommends the importance of evaluating the environment where it is inserted to mitigate the impacts of the external environment within organizations, as stated by Beuren and Fiorentin (2014).

4.2 Information entropy attributed to the technology variable

To verify which questions presented the greatest variability in the responses for the technology variable in the context of the eSocial implementation in the accounting environment, the information entropy was calculated, as shown in Table 2.

Table 2
Information entropy involving the technology variable

Questions	Entropy	Weight of the Question	Mean
Q10 - There was considerable impact in the labor and social security area with the technological advances caused by eSocial	0.9956	0.0766	4.15
Q11 - Information technology improves accounting communication with companies	0.9942	0.1014	4.30
Q12 - Information technology improves communication between accounting and tax authorities	0.9977	0.0410	4.56
Q13 - Information technology bureaucratizes the implementation of eSocial	0.9963	0.0648	4.44
Q14 - The accounting system that accounting uses helps a lot in submitting eSocial	0.9916	0.1474	3.90
Q15 - There is a lack of technological improvement by the government for eSocial	0.9820	0.3167	3.17
Q16 - There was an influence on the work environment with the insertion of technology to adapt the eSocial	0.9933	0.1171	3.95
Q17 - There was an increase in the complexity of the work environment with the implementation of eSocial	0.9923	0.1350	3.88
Total	**7.9431**	**1.0000**	**2.94**

Source: Research data.

It can be seen that the highest mean of responses was retained in the statement Q12, "information technology improves communication between accounting and the tax authorities," together with the lowest weight and the highest entropy. This means that little information can be extracted from the statement, as the respondents are more confident about it, which corroborates the statement's weight, representing more significant agreement among the research participants, so that most agree that technology helps communicate with the tax authorities. These results converge with Donaldson (2001) on the Contingency Theory, verifying that computerization/technology allows the Tax Authorities (or senior management) to communicate with lower management (accounting) and vice versa. It is also verified that it achieved the objective of eSocial, which is to integrate information and facilitate communication between the Tax Authorities and the accounting offices.

The statement with the second highest entropy and lowest weight is that information technology bureaucratizes the implementation of eSocial (Q13). This means that this statement transmits little information; that is, there is more certainty in this statement by the respondents, and there was less divergence among the participants, which leads us to believe that they believe that technology bureaucratizes the implementation of eSocial. This corroborates with Donaldson (2001), who states that the great impact of technology is the increase in bureaucratization since computer programs dictate the rules to be followed. Thus, it can be seen that respondents believe that because eSocial is a fully technological tool, it ends up making the implementation of eSocial more difficult.

Statement Q15, "there is a lack of technological improvement by the government for eSocial," presented the lowest mean and the lowest entropy; this reveals that this statement transmits greater information; it has the highest weight, which means that for this statement, there is no agreement between the respondents. Thus, it can be seen that there was a certain disparity between the respondents, who could not say with certainty that there is a lack of technological improvement by the government for eSocial.

Given this, Beuren and Macohon (2016) present that the government needs to modernize the administrative apparatus to provide for the development of companies. This is linked to the idea of Vasconcellos (2021) and converges with the results identified in this research, as Vasconcellos (2021) shows that the government is increasingly investing in technological tools to improve and enhance accounting processes, but has not yet reached the level necessary for this.
Therefore, the statement states that the accounting system used by accountants helps in submitting the eSocial (Q14) with low entropy, representing greater information in this statement. In other words, there was greater uncertainty among the respondents, and it still had the greatest weight. This means there was a more significant divergence between the respondents, leading to the belief that the respondents mostly do not believe that the accounting system they use helps them as it should in submitting the eSocial events. This result differs from Dantas et al. (2021), who identified that the majority state that the accounting system can assist in submitting eSocial events.

4.3 Information entropy attributed to the implementation of eSocial

To identify the questions with greater variability in the responses for the impact of the implementation of eSocial on accounting offices, the information entropy was calculated, as shown in Table 3.

Table 3
Information entropy on the implementation of eSocial

Questions	Entropy	Weight of the Question	Mean
Q18 - Greater bureaucracy occurred with the implementation of eSocial	0.9913	0.0511	4.05
Q19 - There was greater compliance with labor rights with eSocial	0.9917	0.0488	4.06
Q20 - The implementation of eSocial reduced informality in the submission of labor and social security information	0.9852	0.0868	3.72
Q21 - Employers and employees are prepared for the procedural changes that eSocial requires	0.9886	0.0665	3.00
Q22 - eSocial brought convenience to my daily life	0.9828	0.1007	3.34
Q23 - I am adapted to the implementation and applicability of eSocial	0.9934	0.0388	4.05
Q24 - The company where I work provided training tools for eSocial	0.9953	0.0277	4.27
Q25 - eSocial requires greater training compared to manual work	0.9971	0.0169	4.43
Q26 - eSocial provided agility in data processing and access	0.9935	0.0380	4.06
Q27 - eSocial optimized the reliability of information	0.9939	0.0358	4.17
Q28 - There was a decrease in tax evasion after the implementation of eSocial	0.9828	0.1006	3.37
Q29 - Using eSocial reduces the steps of your work	0.9810	0.1110	3.00
Q30 - eSocial provided cost savings	0.9794	0.1207	2.64
Q31 - I consider myself able to handle eSocial	0.9900	0.0584	3.95
Q32 - The company I work for is fully eSocial compliant	0.9956	0.0259	4.34
Q33 - There were difficulties in implementing eSocial	0.9918	0.0477	3.99
Q34 - eSocial requires greater caution by the accounting	0.9958	0.0247	4.48
Total	**16.8290**	**1.0000**	**2.50**

Source: Research data.

It is possible to observe that the highest mean of respondents centered on statement Q34, "eSocial requires greater caution by accounting offices," followed by statement Q25, "eSocial requires greater training compared to manual work." Given this, it is assumed that eSocial is still a very new tool, so all submissions must be accurate and true to avoid fines. It ends up requiring greater caution and greater training by accountants. This is confirmed in the study by Oliveira et al. (2017), in which 41% of their respondents said they were increasingly seeking knowledge and improvement in the area because the tool needs preparation and qualification.

The issues of eSocial requiring greater training than manual work and greater caution by accounting offices also stood out for their entropy and informational weight. This reveals that there is less information to be extracted from these statements. In other words, there is little disparity in responses, and they have greater agreement among respondents. These data converge indirectly with the study by Reis et al. (2021), who also found greater agreement in both situations, but specifically related to SPED. Therefore, it can be assumed that accounting professionals who use this system do not believe that eSocial has simplified the submission of ancillary obligations since they had to specialize to meet this new demand, as presented in the research by Dantas et al. (2021), who identified difficulties in understanding eSocial and the need for qualifications and training to understand how eSocial works.

In contrast, the statements that presented lower entropy and greater weight were Q30, "eSocial provided cost reduction," and Q29, "using eSocial reduces the steps of your work," which means that there is a lot of information transmitted by these statements and that there was greater divergence in the responses, indicating different opinions. This is in line with the study by Reis et al. (2021) regarding SPED, who did not find total agreement on these factors. These results can be justified because eSocial did not reduce costs or the work steps, as stated by Oliveira et al. (2017);

it only redirected them. The value previously used for an improvement course for any ancillary submission is currently destined for courses aimed at eSocial or even for hiring more improved software. And yet, as presented in the course of the work, the ancillary statements did not cease to exist; they only changed the form of submission, now through eSocial, so that in the understanding of the respondents, it did not decrease the work steps.

4.4 Relationship between environment, technology, and eSocial implementation

We sought to verify whether there is a relationship between the environment and technology contingency variables with the implementation of eSocial, as shown in Table 4.

Table 4
Pearson Correlation

		Environment	Technology	eSocial
Environment	Pearson *Correlation*	1	0.326**	0.460**
	Sig. (2-tailed)		0.001	0.000
	N	103	103	103
Technology	Pearson *Correlation*	0.326**	1	0.354**
	Sig. (2-tailed)	0.001		0.000
	N	103	103	103
eSocial	Pearson *Correlation*	0.460**	0.354**	1
	Sig. (2-tailed)	0.000	0.000	
	N	103	103	103

**. *Correlation is significant at the 0.01 level (2-tailed).*
Source: Research data.

It is possible to verify a mean correlation between the environment and technology contingency variables and the implementation of eSocial. This demonstrates that the environment (internal or external) changes with a medium impact on the implementation of eSocial, or vice versa. These results can be compared to the study by Reis et al. (2021), who found that technology and environment factors directly impact the accounting routine, in which the respondents of the study above fully agreed that the environment changed after inserting SPED in the accounting routines.

There was also a mean relationship between the technology contingency variable and the implementation of eSocial, which ends up diverging from the study by Filipin et al. (2016), who state that the impact of technology on eSocial should be great because it required an immense modernization of tools and investments in technological knowledge by employees. This idea is in line with what was exposed by Oliveira et al. (2017), who found that the knowledge of eSocial users regarding technology was intermediate and, therefore, it can be assumed that because eSocial is a fully computerized environment, the more knowledge in technology, the easier it will be to understand and use eSocial.

5 FINAL THOUGHTS AND RECOMMENDATIONS

The research analyzed the accountants' perception of contingency variables (environment and technology), the impacts and challenges of implementing eSocial, and the relationship between contingency variables and the implementation of eSocial. It was clear during the research that technologies have advanced. Consequently, the environment has changed, and the accounting area and supervisory agencies could not stop in time and ignore these advances.

Because of this, concerning the information obtained through entropy for the environment contingency variable, most accountants agree that there have been cultural changes and organizational restructuring in the accounting offices. This suggests there have actually been

changes in the internal accounting environment (changes in processes, communication, routines) due to changes in the external environment through eSocial.

Furthermore, there was disagreement when it was stated that the government is 100% prepared to manage eSocial information and that the government had an influence on its implementation. In other words, accounting professionals do not believe that the government is fully prepared to manage the large number of information generated by eSocial or that it had an influence on its implementation, which demonstrates insecurity by the respondents with the external environment (government), which ends up having repercussions on the internal accounting environment.

Regarding the technology contingency variable, it was found that most agree that it improves communication between accounting and the tax authorities and also between accounting offices and companies. Still, they also believe that it bureaucratizes the implementation of eSocial, demonstrating that technology has brought convenience in some sectors and difficulties in some areas, so companies must adapt in the face of these new situations.

There was no agreement among the participants regarding the lack of technological improvement by the government for eSocial. Most do not believe that the accounting system they use daily helps them submit eSocial events. Thus, it can be seen that technology also generates reflections in accounting offices since, with technological advances, those who follow them and insert them into routines are continuously developing, while, otherwise, they are increasingly far from achieving distinction.

Regarding eSocial, it was possible to verify that the program requires greater caution by accounting offices and requires greater training than manual work. Also, it was found that there was no agreement in the statement affirming that eSocial provided cost reduction and that it reduced the work steps of the respondents. This suggests that, even if the government's goal with eSocial was to simplify and facilitate the submission of labor obligations, it was not fully achieved given this sample. On the contrary, it required more specialization, costs were maintained, and work steps were maintained or even increased.

Therefore, the objective of the work is to verify the perception of accountants about the contingency variables in the implementation of eSocial, in which the various opinions exposed during the work, divergent or convergent on the implementation of eSocial, affirm the core of the Contingency Theory, that there is no single model that can be followed and applied by all companies, each one has a behavior, an understanding, and particularities given the situations, each one will make decisions or apply differentials according to the perception of the situation in which they find themselves.

It was found that the environment and technology have a mean correlation with the implementation of eSocial. It can be concluded that the contingency variables are related to the implementation of eSocial, so that if the environment or technology presents significant changes, for example, a change by the government in the eSocial submission deadlines or a new tool that assists in eSocial submissions, would impact the implementation, but not so strongly, according to the results obtained in the analyzed relationship.

The findings of this research have both theoretical and practical implications. In the theoretical context, the study contributes to the literature on eSocial and contingency variables by exposing, empirically, that there is a relationship between the internal organizational environment (accounting offices), with its customers and the government (external environment), as well as with the technology used in implementing eSocial. Therefore, it is expected that this study will allow researchers to investigate, qualitatively and quantitatively, how accountants could better relate the environment and technology with the constant changes imposed by the government regarding SPED and, more specifically, regarding eSocial and labor changes.

From a practical point of view, it was found that even the technology assisting in communication with the tax authorities, at times, it ends up bureaucratizing the implementation of

eSocial, either by the accounting system used, the necessary training, or even failure in the government system itself, given that in the perception of accountants, eSocial did not reduce the work steps and costs, but unified the transmission of ancillary obligations. In this sense, accounting offices must focus on seeking professional qualification, good software that meets their needs, making their customers aware of laws and government demands, and ensuring adaptability to changes proposed in both the external and internal accounting environments.

As a limitation, the difficulty in obtaining a return from accounting offices regarding the responses of the research instrument is emphasized. Besides, the theme still lacks additional research, as the topic is linked to the constant changes and labor and social security adjustments that will arise. Notably, this study presents results that cannot be generalized since the sample is non-probabilistic and accessible. Thus, the results in other Brazilian states may differ.

Given the above, it is suggested that the research instrument be replicated in another state, even with specific age groups and specific professions, or even to verify if other contingency factors can be reflected in the implementation of eSocial. It is also suggested that the research be applied after the full completion of the eSocial implementation to verify the impacts and challenges after the implementation of the digital FGTS to verify the impact on the routine regarding monthly payments, terminations, and government management with this data.

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AUTHOR CONTRIBUTIONS

Roles	1st author	2nd author
Conceptualization	♦	♦
Data curation		♦
Formal analysis	♦	♦
Investigation	♦	♦
Project administration	♦	♦
Supervision	♦	♦
Validation	♦	♦
Visualization	♦	♦
Writing – original draft	♦	♦
Writing – review & editing	♦	♦

CONFLICT OF INTEREST

The authors assert that there is no conflict of interest related to this submitted work.