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Filipe Carvalho
Luis Fonseca
Gilberto Santos [1]

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DISCLOSURE OF SUSTAINABLE DEVELOPMENT RESULTS BY CERTIFIED PORTUGUESE ORGANIZATIONS IN QUALITY, ENVIRONMENTAL, AND OCCUPATIONAL HEALTH AND SAFETY

Abstract: *Integrated Management System (IMS) supported by Management Systems Standards (MSSs) of the International Organization for Standardization (ISO), such as quality (ISO 9001), environmental (ISO 14001), and occupational health and safety (ISO 45001), is an important tool for approach the Sustainable Development (SD) in the organizations. Thus, the purpose of this research is twofold. First, it aims to qualify and quantify all the SD results (SDRs), that is, the Economic, Environmental, and Social (EES) results, which are disclosed to interested parties by the top management of 235 certified Portuguese organizations in Quality, Environmental, and Occupational Health and Safety (QEOHS). Second, it seeks to determine the profile of the organizations (QEOHS) in which the disclosure of SDRs (i.e., EES results) is more prominent. The research methodology was based on applying the content analysis method to qualify and quantify the disclosure of SDRs in institutional reports published on the institutional website. Holistically, the obtained results were grounded and commented on the theoretical assumptions that support the organizational theories (i.e., stakeholder theory, legitimacy theory, institutional theory, and resource-based view theory).*

Keywords: *Sustainable Development Results (SDRs), Economic, Environmental, and Social (EES), Management Systems Standards (MSSs), Integrated Management Systems (IMSs), Global Reporting Initiative (GRI), Content Analysis, Institutional Reports, Organizational Theories*

1. Introduction

In the last century, in 1972, humanity awoke to the problem of the "exponential growth" after the publication of the report entitled "The Limits to Growth" (Meadows et al., 1972). According to Meadows et al. (1972), "exponential growth is a common process in biological, financial, and many other systems of the world" (p. 28), in turn, the Executive Committee of The Club of Rome (sponsors) mentioned as a final commentary that: "The achievement of a harmonious state of global economic, social, and ecological equilibrium must be a joint venture based on joint conviction, with benefits for all" (p. 194).

Later, in 1987, the World Commission on Environment and Development (WCED), a suborganization of the United Nations (UN), published the report "Our Common Future"

[1] Corresponding author: Gilberto Santos
Email: gsantos@ipca.pt

(WCED, 1987). In this report the concept of Sustainable Development (SD) is defined as the "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). Moreover, the concept of SD is supported in three (3) dimensions, that is, economic, environmental, and social dimensions (see, e.g., Alsayegh et al., 2020; Bansal, 2005; Fonseca et al., 2023; Gallego, 2006; Lozano, 2008; Strezov et al., 2017).

Over the past three decades, the concept of SD has evolved from the macroscale (planet) to the microscale (organization) largely due to the adoption by the organizations of the Management Systems (MSs). Generally, the MSs adopted by the organizations are based on standards published by the International Organization for Standardization (ISO) and by the British Standards Institution (BSI) (Carvalho et al., 2019; Fonseca & Carvalho, 2019; Fonseca et al., 2023; Merlin et al., 2012; Rocha & Searcy, 2012; Sealy et al., 2010; Silva et al., 2020; Steurer et al., 2005).

For this reason, the Integrated Management System (IMS) based on the ISO standards of MSs, such as Quality, Environmental, and Occupational Health and Safety (QEOHS), that is, the IMS–QEOHS (Fonseca et al., 2023; Rebelo et al., 2016), is considered an important tool for implementing the three dimensions of the SD within organizations (Andre et al., 2009; Asif & Searcy, 2014; Asif et al., 2011; Başaran, 2018; Fonseca et al., 2023; Mežinska et al., 2015; Rebelo et al., 2016; Rocha & Searcy, 2012; Rocha et al., 2007; Samy et al., 2015; Velmakina et al., 2019; Santos et al., 2017). Hence, the integration of MSs has contributed to increase the implementation and certification of QEOHS MSs in Portugal and in the rest of the world (Fonseca et al., 2017; Santos et al., 2011, 2012). Nowadays, the literature emphasizes the various impacts of the IMS on organizational performance, highlighting its contribution to SD (Barbosa et al., 2022). Additionally, the IMS based on international standards (ISO standards) helps organizations achieve the intended results or outcomes (ISO, 2015a, 2015b, 2018). In the literature, the term "results" is a synonym for "metrics, information, measures, indicators, outcomes, and outputs" (Pojasek, 2003, p. 91), that is, "results are merely the outcome of performance" (Pojasek & Hollist, 2011, p. 81). Fonseca et al. (2019) argues that many organizational characteristics influence the organizational performance outcomes or results. According to Meadows et al. (1972), "exponential growth can yield surprising results" (p. 29), thus, continuous monitoring, measurement, analysis, and evaluation of the results of the systems are recommended and/ or requested in an approach to SD (Isaksson & Garvare, 2003; Searcy et al., 2008).

In the organizational context, the SD results (SDRs), that is, Economic, Environmental, and Social (EES) results, are determined and communicated to interested parties based on frameworks (i.e., guidelines and standards) proposed by the Global Reporting Initiative (GRI) and others (see Alsayegh et al., 2020; Fonseca et al., 2023; Gallego, 2006; Pojasek, 2003, 2009; Pojasek & Hollist, 2011). Thus, the GRI has been considered an important reference in the communication of the SDRs to interested parties (Gallego, 2006). In the last two decades, "GRI has sought to define a set of results that are comparable, robust, and consistent" (see Pojasek, 2009, p. 90).

According to Azapagic (2003), "effective communication is essential for promoting the concept of SD, as well as for promoting the company's achievements" (p. 314), in other words, "communication is central for the success of any sustainability strategy" (Derqui, 2020, p. 2714). Therefore, internal and external communication supported by institutional reports is an important tool for communicating SDRs to interested parties (Azapagic, 2003; Derqui, 2020; Fonseca et al., 2023). According to Asif et al. (2011), "the results of the assessment need to be communicated to the key stakeholders (both internal and external)" through reports (p. 363). In turn, the standards of MSs assign several requirements to internal and external communication (Carvalho et al., 2018, 2019,

2020; Fonseca et al., 2023; Pojasek, 2012).

Therefore, the research objectives proposed in this research study are supported by the following two (2) research questions (RQs):

RQ1: What are the SDRs disclosed in the institutional reports published by certified Portuguese organizations (QEOHS)?

RQ2: What is the profile of the certified Portuguese organizations (QEOHS) where the disclosure of SDRs is more prominent?

Finished the Introduction, the remaining of the paper is structured into the following sections: Section 2 presents the Literature review; Section 3 shows the Methodology; Section 4 provides the Results; Section 5 displays the Discussion; and, finally, the Section 6 reveals alls the Conclusions of the research and presents the mains limitations and suggestions for future investigations.

2. Literature review

2.1. SD trough IMS–QEOHS

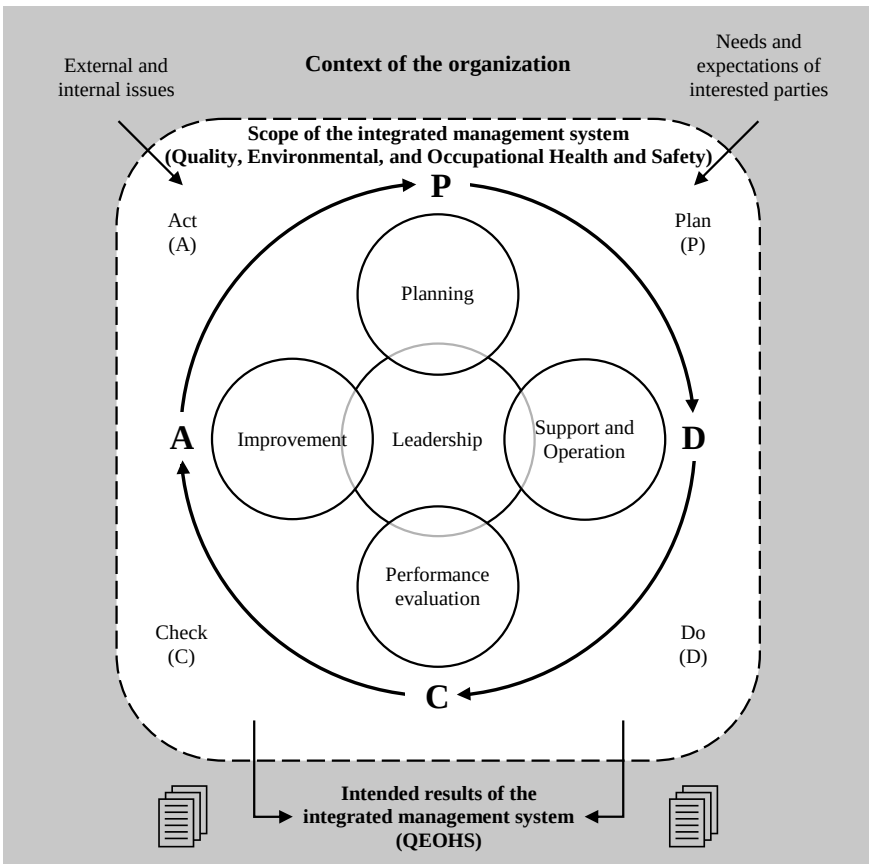
Since 1987, the concept of SD has evolved conceptually towards greater proximity to organizations and its stakeholders (Steurer et al., 2005). In this way, the concept of SD is usually analyzed from the perspective of the relationship with many other concepts, such as Corporate Sustainability (CS), Corporate Social Responsibility (CSR), and the IMS (Carvalho et al., 2018, 2020; Fonseca et al., 2023; Montiel & Delgado-Ceballos, 2014; Steurer et al., 2005; Van Marrewijk, 2003).

Also since 1987, the ISO has played an important role in the publication of standards to support the several MSs. In September 2015, the ISO published the fifth edition of the ISO 9001 standard (ISO, 2015b) and the third edition of the ISO 14001 standard (ISO, 2015a). In March 2018, the ISO published the first edition of the ISO 45001 standard (ISO, 2018). Overall, according to the main literature, the Quality Management System (QMS), based on the ISO 9001, contributes to the economic dimension of the SD (e.g., Bastas & Liyanage, 2018; Fonseca et al., 2023; Kuei & Lu, 2013; Rusko et al., 2014; Siva et al., 2016; Jimenez et al., 2019; Fonseca et al., 2022; Santos & Barbosa, 2006). It is important improve production systems (Zgodavova et al., 2020; Rodrigues et al., 2019; Vieira et al; 2019; Doiro et al., 2019).

On the other hand, the Environmental Management System (EMS), based on the ISO 14001, contributes to the environmental dimension of the SD (e.g., Bravi et al., 2020; Fonseca et al., 2023; Fonseca, 2015; Hyršlová et al., 2007; Ikram et al., 2019; Lee et al., 2017; Rusko et al., 2014). Additionally, the Occupational Health and Safety Management System (OHSMS), based on the ISO 45001 (Note: replaces the British Standard of the Occupational Health and Safety Assessment Series 18001:2007—BS OHSAS 18001:2007), contributes to the social dimension of the SD (see, e.g., Chen, 2004; Fonseca et al., 2023; Marhavilas et al., 2018; Molamohamadi & Ismail, 2014).

Nowadays, the structure proposed by the Annex SL and the PDCA (Plan–Do–Check–Act) cycle of the ISO standards common to MSs, as well as the requirements of the PAS (Publicly Available Specification) 99:2012, proposed by the BSI, contribute largely to the total integration of the MSs (QMS, EMS, and OHSMS). According to BSI (2012), the concept of IMS is defined as a "Management System (MS) that integrates multiple aspects of an organization's systems and processes to one complete framework, enabling an organization to meet the requirements of more than one MS standard" (p. 2). In this sense, the IMS–QEOHS is a fundamental tool to approach the three dimensions of the SD at the organizational level (see, e.g., Borella & Borella, 2016; Ejdys & Matuszak-Flejszman, 2010; Moumen & Aoufir, 2017; Nadae & Carvalho, 2019; Oskarsson & Von Malmborg, 2005). According to Nunhes and Oliveira (2020), the concept of SD is today a "term emerging within the IMS context" (p. 1261). Hence, one of the main benefits of the IMS–QEOHS is to promote the SD in the organizations (see Talapatra et al., 2019).

Figure 1 presents the IMS–QEOHS model, whose structure is based on the clauses of the ISO standards of the three MSs and its relationship with the PDCA cycle. In the scheme shown special emphasis is placed on the output of the system referring to the reporting of the results to interested parties.



Note: QEOHS, Quality, Environmental, and Occupational Health and Safety; PDCA Cycle, Plan–Do–Check–Act.

Figure 1. The IMS–QEOHS model (adapted from ISO, 2015a, 2015b, 2018)

2.2. ISO and GRI standards

In 1997, the GRI was founded in Boston, United States of America (USA), as a result of the relationship between the Coalition for Environmentally Responsible Economies (CERES), the United Nations Environment Programme (UNEP), and the Tellus Institute, with the mission of developing "Guidelines" for reporting on economic, environmental, and social performance (see Gallego, 2006; Girella et al., 2019; Landrum & Ohsowski, 2018; Laskar & Maji, 2016, 2018; Pacheco et al., 2020; Pojasek, 2009; Siew, 2015).

In June 2000, the GRI published the first version (edition) of the "Guidelines" (G1) entitled "Sustainability Reporting Guidelines on Economic, Environmental, and Social Performance" (see, e.g., Bellini et al., 2019; Lambrechts et al., 2019; Laskar & Maji, 2016). In September 2002, the GRI launched the second version of the "Guidelines" (G2) now designated by "Sustainability Reporting Guidelines" (Bellini et al., 2019; Lambrechts

et al., 2019; Laskar & Maji, 2016, 2018). In October 2006, the GRI published the third version of the "Guidelines" (G3) with the same name as the previous version (Bellini et al., 2019; Lambrechts et al., 2019; Laskar & Maji, 2016; Pojasek, 2009; Sealy et al., 2010; Siew, 2015). In March 2011, the GRI revised the third version of the "Guidelines" (G3.0) and published a new update version (G3.1) (Bellini et al., 2019; Lambrechts et al., 2019; Laskar & Maji, 2016, 2018; Rossi & Tarquinio, 2017; Siew, 2015). In May 2013, the GRI published the fourth version of the "Guidelines" (G4) (Bellini et al., 2019; Girella et al., 2019; Lambrechts et al., 2019; Laskar & Maji, 2016; Rashed et al., 2022; Siew, 2015; Vieira et al., 2021). In October 2016, the GRI launched the first version of the "GRI Standards" entitled by "GRI Sustainability Reporting Standards" (Bellini et al., 2019; Girella et al., 2019; Lambrechts et al., 2019; Vieira et al., 2021).

Holistically, the "GRI Standards" include "Universal Standards" and "Topic-specific Standards" (Bellini et al., 2019; Chowdhury et al., 2021; Girella et al., 2019; Kamela & Alam, 2021). Hence, the "GRI Standards" are divided into four series: 100, 200, 300, and 400 (Bellini et al., 2019; Cöster et al., 2020; Kamela & Alam, 2021; Saber & Weber, 2019; Yang et al., 2020). Thus, the "Universal Standards" (100 series) include three standards: "GRI 101: Foundation", "GRI 102: General Disclosures", and "GRI 103: Management Approach" (Bellini et al., 2019; Chowdhury et al., 2021; Cöster et al., 2020; Girella et al., 2019; Kamela & Alam, 2021; Saber & Weber, 2019). In turn, the "Topic-specific Standards" (200, 300, and 400 series) include three standards: "GRI 200: Economic", "GRI 300: Environmental", and "GRI 400: Social" (Bastas & Liyanage, 2019; Bellini et al., 2019; Chowdhury et al., 2021; Cöster et al., 2020; Fonseca et al., 2023; Girella et al., 2019; Kolsi et al., 2021; Pacheco et al., 2020; Saber & Weber, 2019; Yang et al., 2020). Subsequently, the "GRI Standards" (2016 version) were updated and published in 2018 and 2020 (GRI, 2020).

Thus, "the GRI standards created a common language for organizations and stakeholders, with which the economic, environmental, and social impacts of organizations can be communicated and understood" (GRI, 2016, 2020, p. 3). Hence, the GRI guidelines and standards are fully aligned with the concepts: "Triple Bottom Line" (TBL) and "Triple P" (Profit, Planet, and People), proposed by Elkington (1997, 2004, p. 2). Therefore, the GRI frameworks allow implementing the three dimensions of the SD in organizations (Asif et al., 2011; Pojasek, 2003). Recently, Fonseca et al. (2023) proposed a framework for implementing and disclosing SD within organizations, where the ISO standards (i.e., ISO 9001, ISO 14001, and ISO 45001) are aligned with the GRI standards (GRI 200, GRI 300, and GRI 400). Table 1 shows the relationship between ISO and GRI standards in an approach to the three dimensions of the SD and respective MSs (QEOHS) adopted.

Table 1. Relationship between standards

SD dimensions	Management systems	ISO standards	GRI standards
ECO	QMS	ISO 9001	GRI 200
ENV	EMS	ISO 14001	GRI 300
SOC	OHSMS	ISO 45001	GRI 400

Note: SD, Sustainable Development; ISO, International Organization for Standardization; GRI,Global Reporting Initiative; ECO, Economic; ENV, Environmental; SOC, Social (results); QMS, Quality Management System; EMS, Environmental Management System; OHSMS, Occupational Health and Safety Management System; ISO 9001, Quality Management (systems); ISO 14001, Environmental Management; ISO 45001, Occupational Health and Safety Management; GRI 200, Economic (series); GRI 300, Environmental; GRI 400, Social.

2.3. Contribution of the IMS–QEOHS to the disclosure of SDRs

Nowadays, the IMS–QEOHS is fundamental for implementing and disclosing the three dimensions of the SD at an organizational level (Asif et al., 2011; Fonseca et al., 2023; Nadae et al., 2021; Rebelo et al., 2016). According to Fonseca et al. (2023), the IMS–QEOHS promotes the implementation of the SD in organizations, as well as the disclosure

of SDRs to interested parties. Additionally, Ronalter et al. (2023a, 2023b) argue that the MSs based on ISO standards improve the organizational performance and highlight the environmental, social, and governance (ESG) themes, such as "ESG performance". According to Lian et al. (2023), the ESG performance affects the SD. In turn, the ESG performance is related to "ESG disclosure" (Lokuwaduge & Heenetigala, 2017). On the other hand, the "EES performance" shows a positive relationship with the ESG disclosure (Alsayegh et al., 2020). In turn, the concepts "results" and "performance" are distinct, but are related (Pojasek, 2003, p. 92). Recently, Khan (2022) developed a research on ESG disclosure and organizational performance.

In recent years, the ESG disclosure promoted by organizations has been growing rapidly (Shalhoob & Hussainey, 2023; Tsang et al., 2023). According to the literature, the GRI standards allow addressing the EES and ESG performance and ESG disclosure (Alsayegh et al., 2020; Lokuwaduge & Heenetigala, 2017; Luo & Tang, 2023; Sharma et al., 2020). Consequently, the ISO Management System Standards (MSSs), such as ISO 9001 (QMS), ISO 14001 (EMS), and ISO 45001 (OHSMS), contribute to "ESG performance" (Ronalter et al., 2023a, 2023b). Therefore, the IMS–QEOHS based on ISO and GRI standards benefits the disclosure of SDRs to interested parties (Fonseca et al., 2023). Table 2 shows the relationship between EES and ESG performance in an approach to organizational practices associated with the disclosure of SDRs based on GRI standards.

Table 2. SDRs, EES and ESG performance

GRI standards	SD results	EES performance	ESG performance
GRI 200	ECO	ECO	GOV
GRI 300	ENV	ENV	ENV
GRI 400	SOC	SOC	SOC

Note: GRI, Global Reporting Initiative; SD, Sustainable Development; EES, Economic, Environmental, and Social; ESG, Environmental, Social, and Governance; GRI 200, Economic (series); GRI 300, Environmental; GRI 400, Social; ECO, Economic (dimensions); ENV, Environmental; SOC, Social; GOV, Governance.

2.4. Contribution of the institutional reports to the disclosure of SDRs

Nowadays, the disclosure of organizational results to interested parties is done through the publication of "institutional reports" (see Fonseca & Carvalho, 2019, p. 7; Fonseca et al., 2023, p. 9). Generally, the preparation and disclosure of reports by organizations arise from the legal and regulatory obligation imposed by the government and regulatory institutions, as well as by the organizational strategy (Fonseca et al., 2023). Thus, in the organizational context, the reporting on SD is based on many frameworks and standards (Girella et al., 2019). According to Landrum and Ohsowski (2018), the GRI frameworks are an important tool for reporting on SD. However, Siew (2015) argues that there are many other tools for reporting on SD at an organizational level, such as ISO 9001, ISO 14001, and BS OHSAS 18001 standards.

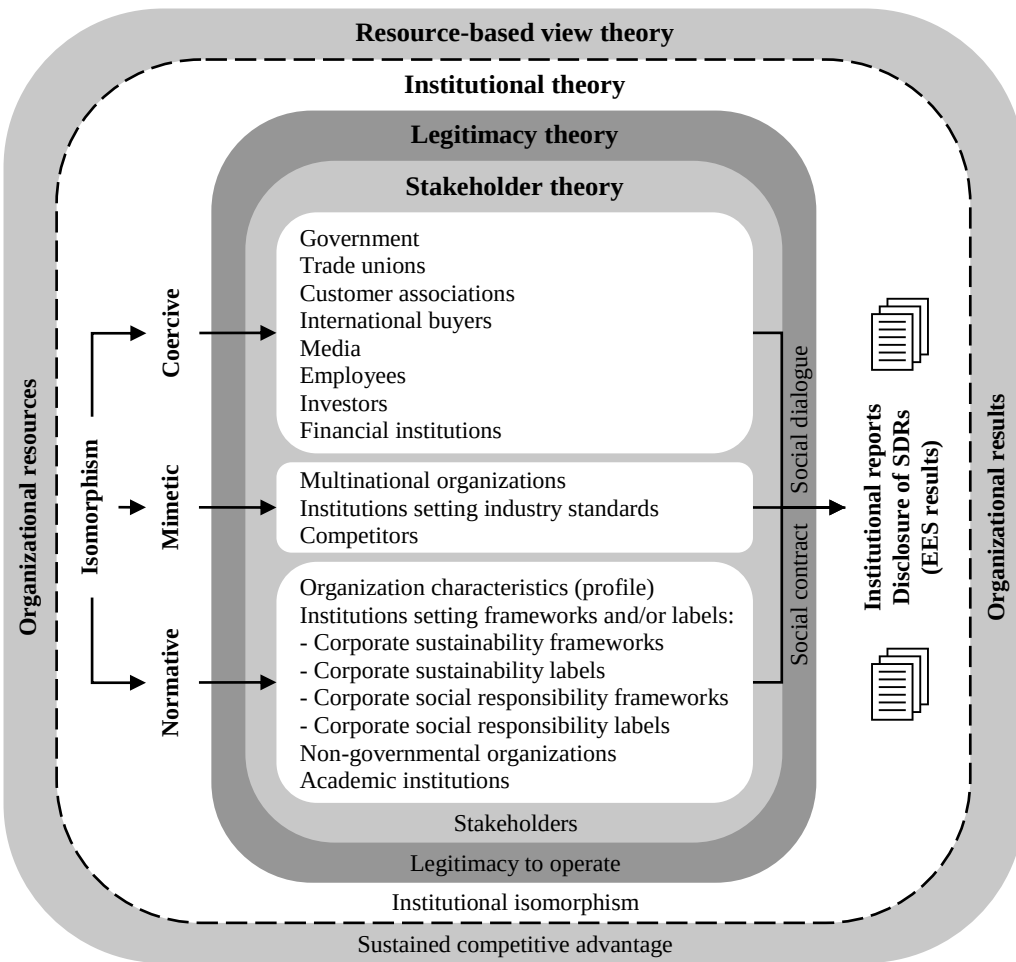
According to the literature, the institutional reports published by organizations may have different "titles" (Ching & Gerab, 2017, p. 101; Landrum & Ohsowski, 2018, p. 146; Stolowy & Paugam, 2018, p. 537; Turzo et al., 2022, p. 6). In Portugal, the certified organizations in QEOHS disclose on website several "institutional reports", such as (title): sustainability report; social responsibility report; environmental report; occupational health and safety report; management report; accounts report; accounts and management report; financial report; corporate governance report; and integrated report (see e.g., Carvalho et al., 2018, p. 261, 2019, p. 476, 2020, p. 1078; Fonseca & Carvalho, 2019, p. 7; Fonseca et al., 2023, p. 13).

2.5. Contribution of the organizational theories to the disclosure of SDRs

Many works show that some "organizational theories" (see Carvalho et al., 2019, p. 462; Montiel & Delgado-Ceballos, 2014, p. 124; Shibin et al., 2020, p. 303), that is, "theories of the firm" (Lozano et al., 2015, p. 430), "management theories" (Tuczek et al., 2018,

p. 399), or both the names (Gianni et al., 2017), such as stakeholder theory, legitimacy theory, institutional theory, and resource-based view theory, are common in research on IMS (Gianni et al., 2017), MSs (Tuczek et al., 2018), SD (Bansal, 2005; Carvalho et al., 2018, 2019; Khan et al., 2018; Lozano et al., 2015), CS (Benvenuto et al., 2023; Ching & Gerab, 2017; Rahman et al., 2023; Tavares & Dias, 2018), and CSR (Branco & Rodrigues, 2008). For this reason, "the selection of one or more organizational theories, with justification and proper fit to the area of study, is an important and difficult task" (Shibin et al., 2020, p. 303).

According to several authors, the integration of the assumptions of the organizational theories is possible and recommended (Ali & Rizwan, 2013; Fernando & Lawrence, 2014; Lai et al., 2009; Lozano et al., 2015; Shibin et al., 2020). Therefore, the organizational theories are applied to SD (Lozano et al., 2015; Montiel & Delgado-Ceballos, 2014; Shibin et al., 2020) and MSs (Gianni et al., 2017; Tuczek et al., 2018). Figure 2 shows the four main organizational theories that are considered relevant for disclosure of SDRs.



Note: SDRs, Sustainable Development Results; EES, Economic, Environmental, and Social.

Figure 2. Organizational theories and disclosure of SDRs (adapted from Ali & Rizwan, 2013)

According to Freeman (1984), the concept of "stakeholder" is defined as "any group or individual who can affect or is affected by the achievement of the organization's objectives" (p. 46). Hence, the stakeholder theory is based on the analysis of the relationships between an organization and the interested parties, who can affect or are affected by its global activity (see Donaldson & Preston, 1995; Freeman, 1984). Thus, the opinion of the stakeholders is important in an approach to MSs and SD (Asif et al., 2011; Carvalho et al., 2019; Garvare & Johansson, 2010; Qi et al., 2013; Steurer et al., 2005).

Holistically, the legitimacy theory is based on the concept of "legitimacy" (Suchman, 1995, p. 574), that is, on the notion that the organizations operate in society through a "social contract" established between the organization and the its interested parties, whose aim is to legitimize the its operation (Guthrie & Parker, 1989, p. 344). Hence, the "social dialogue" on SD maintained between the organization and its stakeholders is very relevant to maintain the "legitimacy of the license to operate" or "legitimacy to operate" (Ali & Rizwan, 2013, p. 594; Asif et al., 2011, p. 355; Carvalho et al., 2019, p. 463).

According to the literature, the institutional theory is based on the assumption that the organizations, to increase their legitimacy, adopt institutionalized practices, thus giving rise to "institutional isomorphism" (Meyer & Rowan, 1977, p. 349). DiMaggio and Powell (1983) identified the three mechanisms of institutional isomorphism, that is, "coercive isomorphism", "mimetic isomorphism", and "normative isomorphism" (p. 150). Hence, the ISO and GRI standards contribute to the institutional isomorphism, as both promote the SD in the organizations (Carvalho et al., 2019; Fonseca et al., 2023; Gauthier, 2013).

Nowadays, the expression "Resource-Based View" (RBV) is based on the perspective of the resources of an organization (Wernerfelt, 1984, p. 171). So, the RBV theory assumes that the strategic management of the several resources generates "sustained competitive advantage" (Barney, 1991, p. 102), that is,. suggests that the various resources of an organization are the key to the organizational performance, competitive advantage, and the strategic success. Hence, the RBV theory is associated to SD (Bansal, 2005; Carvalho et al., 2019; Escobar & Vredenburg, 2011; Khan et al., 2018; Lozano et al., 2015).

2.6. Research hypotheses

This subsection shows the ten (10) research hypotheses (H) formulated, according to the literature (see Carvalho, 2019, pp. 61–64):

H1: Disclosure of SDRs is more prominent in the organizations (QEOHS) with greater business volume (turnover);

H2: Disclosure of SDRs is more prominent in the organizations (QEOHS) with the legal form of a Public Limited Company (PLC);

H3: Disclosure of SDRs is more prominent in the organizations (QEOHS) with specific operating in the secondary sector;

H4: Disclosure of SDRs is more prominent in the organizations (QEOHS) located in the districts of Lisbon or Setubal;

H5: Disclosure of SDRs is more prominent in the organizations (QEOHS) exposed in the media rankings;

H6: Disclosure of SDRs is more prominent in the organizations (QEOHS) of the public business sector;

H7: Disclosure of SDRs is more prominent in the organizations (QEOHS) members of the Business Council for Sustainable Development (BCSD) Portugal;

H8: Disclosure of SDRs is more prominent in the organizations (QEOHS) members of the United Nations Global Compact (UNGC) Network Portugal (NP);

H9: Disclosure of SDRs is more prominent in the organizations (QEOHS) with action in the environmental area;

H10: Disclosure of SDRs is more prominent in the organizations (QEOHS) that disclose their sustainability reports on their website.

3. Methodology

3.1. Research sample

In Portugal, in the years immediately prior to the COVID-19 pandemic, there were several organizations with MSs certified in Quality (ISO 9001), Environmental (ISO 14001), and Occupational Health and Safety (BS OHSAS 18001). Consequently, the research sample included 235 certified Portuguese organizations in QEOHS (i.e., ISO 9001, ISO 14001, and BS OHSAS 18001), which cumulatively satisfied the two (2) conditions:

- Provides an institutional website accessible on the Internet in 2019 (year of the exploratory analysis);
- Discloses at least one institutional report on the website in the last four years (i.e., from 2015 to 2018).

3.2. Research method

This research work is based on the content analysis method. Weber (1990) argues that the "content analysis is a research method that uses a set of procedures to make valid inferences from text" (p. 9). In the last years, the content analysis method was used in similar studies (see Asif et al., 2013; Braam & Peeters, 2018; Carvalho et al., 2018, 2019, 2020; Ching & Gerab, 2017; Fonseca & Carvalho, 2019; Fonseca et al., 2023; Gerged et al., 2018; Kolsi et al., 2021; Landrum & Ohsowski, 2018; Mani et al., 2018; Rossi & Tarquinio, 2017; Saber & Weber, 2019; Stacchezzini et al., 2016; Yang et al., 2020).

Holistically, the content analysis is a process (see Figure 3) that requires the definition of objectives, corpus, categories, subcategories, and units of analysis (see Bardin, 1977/2018; Elo & Kyngäs, 2008; Krippendorff, 2018; Weber, 1990), whose purpose is analyze the "presence" or "absence" of certain contents (see Abbott & Monsen, 1979, p. 504; Bardin, 1977/2018, p. 134). So, the content analysis allows a qualitative and quantitative analysis of the message (Bardin, 1977/2018, p. 140).

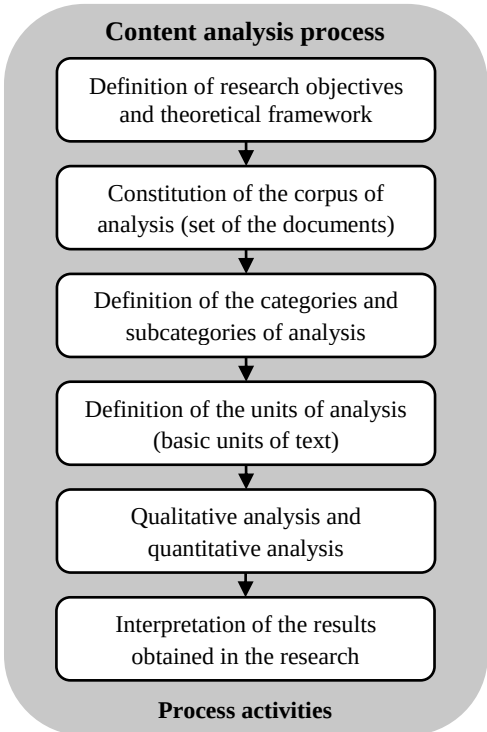


Figure 3. Content analysis process

In this research, the corpus of analysis (i.e., set of the documents selected for analysis) is comprised by institutional reports disclosed on the institutional website of the certified Portuguese organizations─QEOHS (Fonseca & Carvalho, 2019; Fonseca et al., 2023). On the other hand, the categories of analysis are based on the three dimensions of the SD, that is, EES dimensions (Bansal, 2005; Calabrese et al., 2019; Carvalho et al., 2019; Gallego, 2006; Joseph & Taplin, 2011; Montiel & Delgado-Ceballos, 2014; Sobhani et al., 2012). Hence, the categories of analysis are aligned with the "GRI Standards": GRI 200 (economic), GRI 300 (environmental), and GRI 400 (social) (Fonseca et al., 2023; Kolsi et al., 2021; Pacheco et al., 2020; Saber & Weber, 2019; Vieira et al., 2021; Yang et al., 2020). Additionally, the subcategories of analysis are based on the thirty-six items (i.e., GRI items) of the "GRI Standards" (GRI, 2016). Therefore, the subcategories of analysis include items based on "Universal

Standards" (GRI 103) and "Topic-specific Standards" (GRI 200, GRI 300, and GRI 400), as proposed by the GRI (e.g., Fonseca et al., 2023; Kolsi et al., 2021; Mihai & Aleca, 2023; Pacheco et al., 2020; Saber & Weber, 2019; Vieira et al., 2021; Yang et al., 2020). Lastly, the units of analysis are based on the concepts (i.e., themes, words, and/or phrases) that allow to qualify and quantify the SDRs (i.e., GRI items) that are disclosed in the institutional reports (see Carvalho et al., 2018, 2019, 2020; Fonseca & Carvalho, 2019; Fonseca et al., 2023). Table 3 shows the corpus, categories, subcategories, and units of analysis, as defined in the research.

Table 3. Parameters of the content analysis method (adapted from Carvalho, 2019)

Corpus of analysis	Categories and subcategories of analysis	Units of analysis
Institutional reports disclosed on the institutional website of the certified Portuguese organizations (QEOHS), such as: sustainability reports; social responsibility reports; environmental reports; occupational health and safety reports; management reports; accounts reports; accounts and management reports; financial reports; corporate governance reports; and integrated reports.	*GRI 200: Economic*	Concepts (themes, words, and/or phrases) that demonstrate the disclosure of SDRs (i.e., GRI items).
	GRI 103: Management approach (economic)	
	GRI 201: Economic performance	
	GRI 202: Market presence	
	GRI 203: Indirect economic impacts	
	GRI 204: Procurement practices	
	GRI 205: Anti-corruption	
	GRI 206: Anti-competitive behavior	
	GRI 300: Environmental	
	GRI 103: Management approach (environmental)	
	GRI 301: Materials	
	GRI 302: Energy	
	GRI 303: Water	
	GRI 304: Biodiversity	
	GRI 305: Emissions	
	GRI 306: Effluents and waste	
	GRI 307: Environmental compliance	
	GRI 308: Supplier environmental assessment	
	GRI 400: Social	
	GRI 103: Management approach (social)	
	GRI 401: Employment	
	GRI 402: Labor/management relations	
	GRI 403: Occupational health and safety	
	GRI 404: Training and education	
	GRI 405: Diversity and equal opportunity	
	GRI 406: Non-discrimination	
	GRI 407: Freedom of association and collective bargaining	
	GRI 408: Child labor	
	GRI 409: Forced or compulsory labor	
	GRI 410: Security practices	
	GRI 411: Rights of indigenous peoples	
	GRI 412: Human rights assessment	
	GRI 413: Local communities	
	GRI 414: Supplier social assessment	
	GRI 415: Public policy	
	GRI 416: Customer health safety	
	GRI 417: Marketing and labeling	
	GRI 418: Customer privacy	
	GRI 419: Socioeconomic compliance	

Note: QEOHS, Quality, Environmental, and Occupational Health and Safety; GRI, Global Reporting Initiative; GRI 200, Economic (items); GRI 300, Environmental; GRI 400, Social; SDRs, Sustainable Development Results.

3.3. Research data and analysis

The process of data collection and analysis was developed in two phases. In the first phase, the files in PDF (Portable Document Format) of the institutional reports (latest version available) were downloaded from the institutional websites. In turn, the contents of the institutional reports were all analyzed through the content analysis process. In the second phase, all research data collected and analyzed were validated (i.e., verification of the classification assigned in the first phase).

Additionally, all research data collected and analyzed (in both phases) were recorded dichotomously (i.e., "0" or "1") in a research database (i.e., own application created in the software Microsoft® Office® Excel® 2019 version). Therefore, whenever the analyzed content in terms of concepts (i.e., themes, words, and/or phrases) is very relevant to demonstrate the disclosure of SDRs (i.e., EES results), in the scope of the thirty-six subcategories of analysis (i.e., GRI items), it is assigned to the item (*i*-th) the code or value of "one" (1), that is, the case of "presence" or, otherwise, it is assigned to the item (*i*-th) the code or value of "zero" (0), that is, the case of "absence" (see Abbott & Monsen, 1979, p. 504; Carvalho et al., 2018, p. 262, 2019, p. 467, 2020, p. 1076; Fonseca & Carvalho, 2019, p. 8; Fonseca et al., 2023, p. 12; Haniffa & Cooke, 2005, p. 405).

Finally, the various research data collected were treated and analyzed statistically using the software IBM® SPSS® Statistics 26 version (International Business Machines—Statistical Package for the Social Sciences) and the macro KALPHA 3.1.0 version for SPSS (Krippendorff's Alpha). Consequently, the reliability of the research data obtained through the content analysis process was determined based on Krippendorff's alpha coefficient (α), thus obtaining a value of $\alpha = 0.928$. Krippendorff (2018) argues that the reliability of the research data collected is considered acceptable for coefficient values $\alpha \geq 0.800$ (if the research data collected are obtained by the content analysis method).

3.4. Dependent variable

The global measurement of the level of the disclosure of SDRs in institutional reports was supported on the SDRs Disclosure Index (SDRsDI), expressed by Equation 1, whose mathematical formulation is based on the literature (Fonseca et al., 2023, p. 11; Gerged et al., 2018, p. 578; Laskar, 2018, p. 577; Laskar & Maji, 2016, p. 630, 2018, p. 423).

$$\text{SDRsDI}_j = \frac{\sum_{i=1}^{n_j} SDR_{ij}}{n_j} \quad (1)$$

In Equation 1, the DI expresses the level of the disclosure of SDRs (e.g., in institutional reports) for an organization (*j*). In this case, in the numerator, the sum (i.e., $\sum$ from 1 to n_j) of the SDR_{ij} represents all the SDRs (i.e., GRI items) that an organization discloses in the institutional reports; thus, *SDR* is equal to 1 if the *SDR* item (*i*-th) is disclosed by the organization (*j*-th), and 0 otherwise. On the other hand, in the denominator, the value n_j represents the SDRs expected in total, that is, all the SDRs items (i.e., GRI items) that an organization (*j*) may disclose (in this case, the n_j is equal to 36 GRI items). Therefore, if SDRsDI is equal to 0, it indicates that the organization (*j*-th) does not disclose any *SDR* item. In opposition, if SDRsDI is equal to 1, it indicates that the organization (*j*-th) discloses all the SDRs items (or GRI items).

So, we have a quantitative (i.e., continuous) dependent variable (SDRsDI) that may take values between 0 and 1, that is, in the range $0 \leq \text{SDRsDI} \leq 1$ (see Fonseca et al., 2023).

3.5. Independent variables

The ten research hypotheses formulated were based on ten independent variables. In turn, some of the variables had already been used in other research (Braam & Peeters, 2018; Carvalho et al., 2018, 2019, 2020; Fonseca & Carvalho, 2019). Consequently, all these variables are qualitative (or categorical) and classified as dummy or binary (see Table 4).

Table 4. Characterization of the independent variables (adapted from Carvalho, 2019)

Independent variables	Description of the categories of classification of the variables
Business volume (BV)	The organization is classified dichotomously (i.e., 0 or 1) according to the business volume (€) obtained in 2017. When the business volume (turnover) of an organization is among the 1,000 largest of Portugal, the organization is classified as "Greater" (1); otherwise, it is classified as "Other" (0).
Legal form (LF)	The organization is classified dichotomously (i.e., 0 or 1) according to the legal form. When the legal form (juridical form) of an organization assumes the designation of Public Limited Company (PLC), the organization is classified as "PLC" (1); otherwise, it is classified as "Other" (0).
Activity sector (AS)	The organization is classified dichotomously (i.e., 0 or 1) according to the activity sector. When the activity sector (economic sector) of an organization is framed on the secondary sector (second sector), the organization is classified as "Secondary sector" (1); otherwise, it is classified as "Other" (0).
Geographic location (GL)	The organization is classified dichotomously (i.e., 0 or 1) according to the geographic location. When the geographic location (site) of an organization belongs to the district of Lisbon or Setubal, the organization is classified as "Lisbon or Setubal" (1); otherwise, it is classified as "Other" (0).
Media rankings (MR)	The organization is classified dichotomously (i.e., 0 or 1) according to the exposure in the media rankings (lists), published in 2018 or 2019. When the exposure of an organization occurs in the media rankings, the organization is classified as "Exposed" (1); otherwise, it is classified as "No" (0).
Business sector (BS)	The organization is classified dichotomously (i.e., 0 or 1) according to the business sector. When the business sector (i.e., corporate sector) of an organization belongs to the public business sector, the organization is classified as "Public" (1); otherwise, it is classified as "Private" (0).
BCSD members (BM)	The organization is classified dichotomously (i.e., 0 or 1) according to the relationship with the BCSD Portugal. When an organization belongs to a group that assumes a relationship with the BCSD Portugal, the organization is classified as "Member" (1); otherwise, it is classified as "No" (0).
UNGC members (UM)	The organization is classified dichotomously (i.e., 0 or 1) according to the relationship with the UNGC Portugal. When an organization belongs to a group that assumes a relationship with the UNGC Portugal, the organization is classified as "Member" (1); otherwise, it is classified as "No" (0).
Action area (AA)	The organization is classified dichotomously (i.e., 0 or 1) according to the action area. When the action area (intervention) of an organization develops in the environmental area (e.g., waste, water, and others), the organization is classified as "Environmental" (1); otherwise, it is classified as "Other" (0).
Sustainability reports (SR)	The organization is classified dichotomously (i.e., 0 or 1) according to the disclosure of sustainability reports on the website. When an organization has disclosed a sustainability report on the institutional website, the organization is classified as "Disclose" (1); otherwise, it is classified as "No" (0).

Note: BV, Business Volume; LF, Legal Form; AS, Activity Sector; GL, Geographic Location; MR, Media Rankings; BS, Business Sector; BM, BCSD Members; UM, UNGC Members; AA, Action Area; SR, Sustainability Reports; BCSD, Business Council for Sustainable Development; UNGC, United Nations Global Compact; €, Euros.

3.6. Estimation model

In this research, the determination of the profile (i.e., set of common and significant characteristics) of the certified Portuguese organizations (QEOHS), in which normally the disclosure of SDRs is more prominent (i.e., greater than the mean of the sample) was based on the binary logistic regression model (BLRM), expressed by Equation 2, whose mathematical formulation is based on the literature (Hair et al., 2014; Kleinbaum & Klein, 2010). However, in order to apply the BLRM (i.e., binary variables) to the data, the

continuous dependent variable (see SDRsDI) was transformed into a categorical variable (i.e., binary). Thus, if the estimated value of the SDRsDI for an organization (j) is greater that the mean value (i.e., 0.255; see Table 6) the classification "more prominent" (1) is assigned, otherwise, it is classified as "less prominent" (0). Hence, all the variables that integrate the proposed estimation model are binary. In turn, the BLRM was used to test the research hypotheses, thus being in line with other authors (Braam & Peeters, 2018; Calabrese et al., 2022; Carvalho et al., 2018, 2019; Fonseca & Carvalho, 2019; Laskar, 2018; Martínez-Ferrero & García-Sánchez, 2017; Rossi & Tarquinio, 2017; Stacchezzini et al., 2016; Stolowy & Paugam, 2018).

$$logit\ [P(\mathrm{SDRsDI}_{(0,1)j} = 1|\mathrm{BV}, \mathrm{LF}, \mathrm{AS}, \mathrm{GL}, \mathrm{MR}, \mathrm{BS}, \mathrm{BM}, \mathrm{UM}, \mathrm{AA}, \mathrm{SR})] = \beta_0 + \beta_1 \mathrm{BV}_j + \beta_2 \mathrm{LF}_j + \beta_3 \mathrm{AS}_j + \beta_4 \mathrm{GL}_j + \beta_5 \mathrm{MR}_j + \beta_6 \mathrm{BS}_j + \beta_7 \mathrm{BM}_j + \beta_8 \mathrm{UM}_j + \beta_9 \mathrm{AA}_j + \beta_{10} \mathrm{SR}_j + \varepsilon_j \quad (2)$$

Equation 2, formulated and proposed for the BLRM, includes the link function (*logit*), the conditional probability (P) of the binary (0, 1) dependent variable ($\mathrm{SDRsDI}_{(0,\ 1)}$) for an organization ($j$) take the category "more prominent" (1), the several acronyms of the binary independent variables (BV, LF, AS, GL, MR, BS, BM, UM, AA, and SR), the model coefficients (β), and the error term (ε).

4. Results

4.1. Descriptive analysis

In 2019, the exploratory analysis carried out on the institutional website of 235 certified Portuguese organizations─QEOHS allowed us to qualify and quantify all the institutional reports published and disclosed, per year, in the period from 2015 to 2018. However, the content analysis was based only on the latest version available of the institutional reports. Table 5 shows the total number (per year) of institutional reports published (between 2015 and 2018) by all the organizations (QEOHS). Consequently, special emphasis is given to the number of institutional reports published and analyzed (NIRPA) within the scope of this research. In this study, we analyzed 442 institutional reports (published from 2015 to 2018). Holistically, the results show that the sustainability report and the accounts report are both the reports most frequent in terms of the publication and analysis. Therefore, we analyzed 106 (24.0%) sustainability reports and 129 (29.2%) accounts reports. At this time, it is important to remember that each of the 235 organizations (see research sample) published at least one report. Figure 4 shows the number of organizations that published institutional reports. Thus, the results show that the sustainability report and the accounts report were published by 106 (45.1%) and 129 (54.9%) organizations, respectively.

Table 5. Institutional reports published (between 2015 and 2018) by the organizations

Institutional reports	2015	2016	2017	2018	NIRPA	%
Sustainability report	55	61	79	49	106	24.0
Social responsibility report	2	7	10	9	16	3.6
Environmental report	11	13	20	7	24	5.4
Occupational health and safety report	1	5	4	17	24	5.4
Management report	39	38	33	32	50	11.3
Accounts report	102	103	115	81	129	29.2
Accounts and management report	22	23	23	20	24	5.4
Financial report	12	16	21	20	24	5.4
Corporate governance report	20	20	21	15	31	7.0
Integrated report	6	7	9	11	14	3.2
*Total**	270	293	335	261	442	100

Note: NIRPA, Number of institutional reports published and analyzed (latest version only); %, Percentage (per cent). (*)Total number of institutional reports published (between 2015 and 2018) by the certified Portuguese organizations.

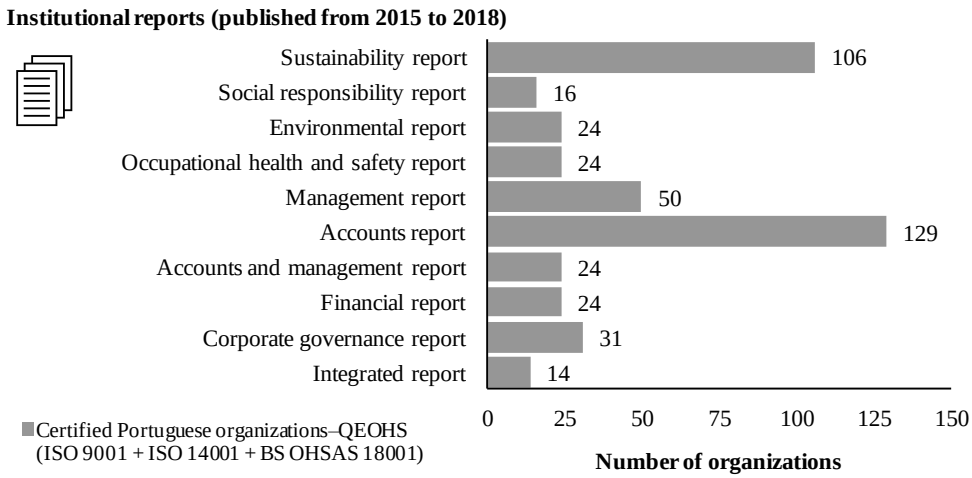


Figure 4. Organizations that published at least one institutional report (from 2015 to 2018)

In this research, through the content analysis process, we counted a total of 2,159 SDRs (GRI items) disclosed in the 442 institutional reports published by the 235 organizations (QEOHS). Figure 5 shows the distribution of the SDRs disclosed by the three categories of analysis. Thus, we count 476 (22.1%) SDRs of the economic category, 648 (30.0%) SDRs of the environmental category, and 1,035 (47.9%) SDRs of the social category.

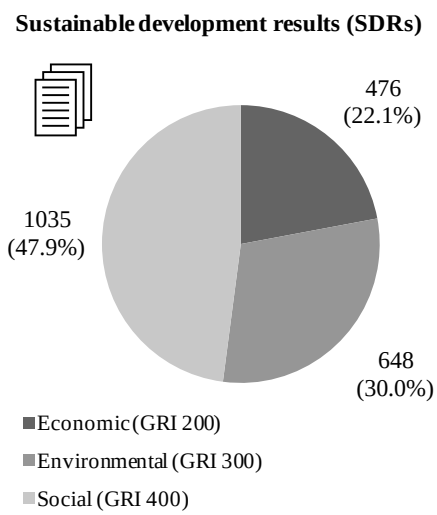


Figure 5. SDRs by category of analysis

Additionally, Figure 6 presents graphically the relationship of all the SDRs disclosed in the institutional reports by subcategory of analysis (i.e., GRI items). In this case, the analysis of the institutional reports made it possible to qualify and quantify all the SDRs disclosed by the organizations to interested parties. Holistically, the disclosure of SDRs by the organizations (QEOHS), show a large discrepancy between the values of the thirty-six subcategories analysed (i.e., GRI items).

According to the results of this research, we can ascertain that the five subcategories of analysis (i.e., GRI items) that present highest frequency (i.e., greater disclosure of SDRs) are the following (in descending order): (*i*) "economic performance" (see GRI 201), disclosed by 167 (71.1%) organizations; (*ii*) "employment" (see GRI 401), disclosed by 135 (57.4%) organizations; (*iii*) "effluents and waste" (see GRI 306), disclosed by 108 (46.0%) organizations; (*iv*) "occupational health and safety" (see GRI 403), disclosed by 104 (44.3%) organizations; and (*v*) "energy" (see GRI 302), disclosed by 102 (43.4%) organizations. In turn, the first three subcategories of analysis mentioned above belong to three categories of analysis (GRI standards), that is, GRI 200 (economic), GRI 300 (environmental), and GRI 400 (social).

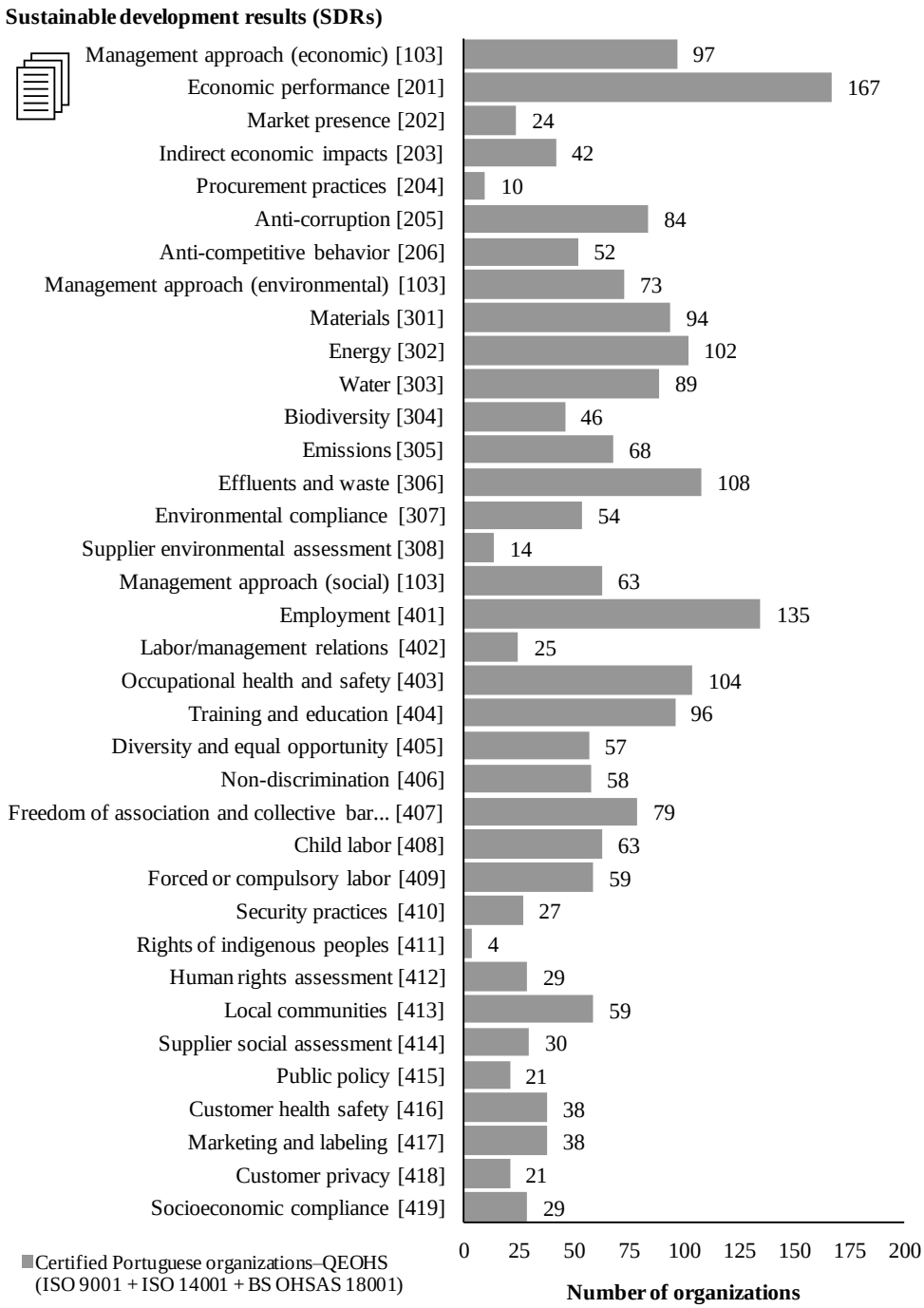


Figure 6. SDRs disclosed in institutional reports by subcategory of analysis (Disclosure of SDRs by certified Portuguese organizations─QEOHS)

4.2. Univariate analysis

In this subsection, it is important to highlight that the dependent variable (i.e., SDRsDI) is a continuous (i.e., quantitative) variable that assumes values in the range between 0 and 1 ($0 \leq SDRsDI \leq 1$). Therefore, it is relevant to remember that a value of zero (0) means that an organization has not disclosed any SDRs (i.e., GRI items) and, in turn, a value of one (1) means that an organization has disclosed all the SDRs (i.e., 36 GRI items). At this point, it is also essential to remember that the research sample consists of a total of 235 certified Portuguese organizations─QEOHS.

Table 6 presents the main statistical results that characterize the dependent variable (i.e., SDRsDI), such as, for example, minimum (0.000), maximum (1.000), and mean (0.255) values. According to the results of the dependent variable, the minimum value (0.000) was obtained by 27 organizations (QEOHS) and the maximum value (1.000) was obtained by only one organization. Thus, we found that 27 organizations did not disclose any SDRs and one organization disclosed all the SDRs in the institutional reports. Therefore, the discrepancy between these results is proven by the values obtained of the standard deviation and of the variance.

In this research, the mean value (0.255) was considered important to apply the proposed estimation model (BLRM), as it allowed transforming the quantitative dependent variable (SDRsDI) into a binary qualitative variable ($SDRsDI_{(0,\ 1)}$), that is, a categorical variable (0 or 1). Consequently, we define the "less prominent" category (0) for all the values of the dependent variable (SDRsDI) lower than the mean value and the "more prominent" category (1) for all the values of the dependent variable (SDRsDI) higher than the mean value. According to the results of the binary qualitative variable ($SDRsDI_{(0,\ 1)}$), the "less prominent" category (0) is assigned to 145 (61.7%) organizations and the "more prominent" category (1) is attributed to the other 90 (38.3%) organizations (QEOHS).

On the other hand, the ten (10) independent variables (i.e., BV, LF, AS, GL, MR, BS, BM, UM, AA, and SR, see Table 4) are all categorical (qualitative) variables, that is, binary (0 and 1) variables. Therefore, all assume the value of "0" or "1" according to their classification category. Moreover, in terms of statistical dimension, all the binary categories (0 and 1) of the ten independent variables include at least 30 organizations. In the next two subsections we show the results of the bivariate and multivariate analysis.

Table 6. Statistical results of characterization of the dependent variable (quantitative)

Dependent variable	*N*	Minimum	Maximum	Sum	Mean	*SD*	Variance
Sustainable development results disclosure index (SDRsDI)	235	0.000	1.000	59.972	0.255	0.218	0.048

Note: *N*, Number; *SD*, Standard Deviation.

4.3. Bivariate analysis

Table 7 shows the statistical results obtained through the analysis of the relationship established between the dependent variable (SDRsDI) and the ten independent variables (BV, LF, AS, GL, MR, BS, BM, UM, AA, and SR). Holistically, the analysis of the results shows the existence of some possible significant statistical differences between the estimated values of the sum and mean of the dependent variable by the categories "0" and "1" of the independent variables. Thus, we consider that the dependent variable presents greater statistical differences in the values of the sum and mean, per category (0 and 1), in the following eight independent variables: "Business volume" (BV); "Activity sector" (AS); "Media rankings" (MR); "Business sector" (BS); "BCSD members" (BM); "UNGC members" (UM); "Action area" (AA); and "Sustainability reports" (SR).

Table 7. Statistical results of the relationship between variables

H	Variables	Dependent						
	Independent	Sustainable development results disclosure index (SDRsDI)						
	(categories 0 and 1)	*N*	Minimum	Maximum	Sum	Mean	*SD*	Variance
H1	Business volume							
	(0) Other	141	0.000	0.972	31.472	0.223	0.199	0.039
	(1) Greater	94	0.000	1.000	28.500	0.303	0.238	0.057
H2	Legal form							
	(0) Other	32	0.000	0.806	7.000	0.219	0.227	0.052
	(1) PLC	203	0.000	1.000	52.972	0.261	0.217	0.047
H3	Activity sector							
	(0) Other	103	0.000	1.000	30.000	0.291	0.229	0.052
	(1) Secondary sector	132	0.000	0.889	29.972	0.227	0.206	0.043
H4	Geographic location							
	(0) Other	124	0.000	0.972	29.139	0.235	0.189	0.036
	(1) Lisbon or Setubal	111	0.000	1.000	30.833	0.278	0.246	0.061
H5	Media rankings							
	(0) No	134	0.000	0.972	30.778	0.230	0.200	0.040
	(1) Exposed	101	0.000	1.000	29.194	0.289	0.237	0.056
H6	Business sector							
	(0) Private	190	0.000	1.000	42.556	0.224	0.212	0.045
	(1) Public	45	0.000	0.889	17.417	0.387	0.195	0.038
H7	BCSD members							
	(0) No	129	0.000	0.972	21.500	0.167	0.181	0.033
	(1) Member	106	0.000	1.000	38.472	0.363	0.212	0.045
H8	UNGC members							
	(0) No	190	0.000	1.000	44.222	0.233	0.201	0.040
	(1) Member	45	0.028	0.889	15.750	0.350	0.261	0.068
H9	Action area							
	(0) Other	175	0.000	1.000	40.667	0.232	0.227	0.051
	(1) Environmental	60	0.000	0.889	19.306	0.322	0.177	0.031
H10	Sustainability reports							
	(0) No	129	0.000	0.694	19.333	0.150	0.166	0.028
	(1) Disclose	106	0.000	1.000	40.639	0.383	0.206	0.042

Note: H, Hypothesis; *N*, Number; *SD*, Standard Deviation; PLC, Public Limited Company; BCSD, Business Council for Sustainable Development; UNGC, United Nations Global Compact.

Consequently, to ascertain if the differences detected in the results were statistically significant, we adopted the Mann–Whitney U test, since the statistical assumptions of the normality of the dependent variable and of the homogeneity of variances between the categories of the independent variables were not all satisfied. Therefore, the Kolmogorov–Smirnov (with Lilliefors correction) and the Shapiro–Wilk tests were used to analyze the normality of distribution. In turn, the Levene test was used to verify the homogeneity of variances. Table 8 shows the main statistical results found with the Mann–Whitney U test.

As the significance level is 0.05 (confidence level of 95%), the statistical results of the Mann–Whitney U test show, with significant statistical evidence (p-value $\approx$ 0.000), the existence of significant statistical differences (p-value < 0.05) in the dependent variable (SDRsDI) for categories (0 and 1) of eight independent variables (i.e., BV, AS, MR, BS, BM, UM, AA, and SR). Hence, the results suggest that individually these eight independent variables, according to their category (0 or 1), contribute significantly to a "lower" or "greater" value of the sum and mean of the dependent variable by category.

Table 8. Statistical results of the Mann–Whitney U test

H	Variables	Dependent				
	Independent (categories 0 and 1)	Sustainable development results disclosure index (SDRsDI)				
		N	Sum of ranks	Mean of ranks	Mann–Whitney U test	*p*-value (one-tailed)
H1	Business volume					
	(0) Other	141	15,354.500	108.900	5,343.500	0.006
	(1) Greater	94	12,375.500	131.650		
H2	Legal form					
	(0) Other	32	3,376.000	105.500	2,848.000	0.131
	(1) PLC	203	24,354.000	119.970		
H3	Activity sector					
	(0) Other	103	13,243.000	128.570	5,709.000	0.018
	(1) Secondary sector	132	14,487.000	109.750		
H4	Geographic location					
	(0) Other	124	14,277.500	115.140	6,527.500	0.247
	(1) Lisbon or Setubal	111	13,452.500	121.190		
H5	Media rankings					
	(0) No	134	14,875.500	111.010	5,830.500	0.035
	(1) Exposed	101	12,854.500	127.270		
H6	Business sector					
	(0) Private	190	20,269.000	106.680	2,124.000	0.000
	(1) Public	45	7,461.000	165.800		
H7	BCSD members					
	(0) No	129	11,413.500	88.480	3,028.500	0.000
	(1) Member	106	16,316.500	153.930		
H8	UNGC members					
	(0) No	190	21,196.500	111.560	3,051.500	0.002
	(1) Member	45	6,533.500	145.190		
H9	Action area					
	(0) Other	175	18,958.500	108,330	3,558.500	0.000
	(1) Environmental	60	8,771.500	146.190		
H10	Sustainability reports					
	(0) No	129	10,693.000	82.890	2,308.000	0.000
	(1) Disclose	106	17,037.000	160.730		

Note: H, Hypothesis; *N*, Number; *p*-value, Probability value or significance; PLC, Public Limited Company; BCSD, Business Council for Sustainable Development; UNGC, United Nations Global Compact.

4.4. Multivariate analysis

In this subsection, the multivariate analysis aims to provide the results obtained from the application of statistical tests (based on the proposed estimation model─BLRM) to the ten (10) research hypotheses (H) formulated.

At this point, it is relevant to remember that the determination (or mapping) of the profile of the 235 certified Portuguese organizations (QEOHS), in which the disclosure of SDRs (i.e., the EES results) is more prominent, was based on the estimation model (i.e., BLRM).

Therefore, the assumption of non-existence of multicollinearity between the independent variables that configure the proposed BLRM was tested exhaustively with many statistical (e.g., Pearson correlation, tolerance, variance inflation factor, eigenvalue, condition index, and variance proportions) and all the results obtained suggested the non-occurrence of severe multicollinearity (Hair et al., 2014).

Table 9 shows the statistical results obtained from the application of the BLRM to the set of the ten (10) independent variables that support the ten (10) research hypotheses (H).

Table 9. Statistical results of the binary logistic regression model (BLRM)

H	Independent variables	β	*SE*	Exp(β)	Wald	*p*-value
H1	Business volume (BV)	0.794	1.265	2.212	0.394	0.530
H2	Legal form (LF)	-0.192	0.533	0.826	0.129	0.719
H3	Activity sector (AS)	0.476	0.392	1.609	1.473	0.225
H4	Geographic location (GL)	-0.077	0.376	0.926	0.041	0.839
H5	Media rankings (MR)	0.340	1.266	1.405	0.072	0.788
H6	Business sector (BS)	2.754	0.588	15.703	21.907	0.000
H7	BCSD members (BM)	1.442	0.453	4.229	10.138	0.001
H8	UNGC members (UM)	0.581	0.501	1.788	1.346	0.246
H9	Action area (AA)	-0.189	0.474	0.828	0.158	0.691
H10	Sustainability reports (SR)	1.492	0.397	4.448	14.130	0.000
	Constant	-3.121	0.702	0.044	19.771	0.000
Statistical parameters of the binary logistic regression model (BLRM)					Statistics	*p*-value
Overall statistics – Chi-square (χ^2)					85.718	0.000
Overall percentage – Percentage correct (%)					79.600	–
Omnibus tests of model coefficients – Chi-square (χ^2)					100.561	0.000
-2 Log likelihood					212.226	–
Cox and Snell – R-square (R^2)					0.348	–
Nagelkerke – R-square (R^2)					0.473	–
Hosmer and Lemeshow test – Chi-square (χ^2)					15.741	0.046

Note: H, Hypothesis; β, Regression coefficient; *SE*, Standard Error; Exp(β), Exponential regression coefficient; Wald, Statistic test; *p*-value, Probability value or significance (two-tailed); BCSD, Business Council for Sustainable Development; UNGC, United Nations Global Compact.

Table 10 shows the collinearity statistics. All the independent variables have tolerance (T) greater than 0.1 and variance inflation factor (VIF) less than 10. Therefore, we found that the ten independent variables do not present any significant multicollinearity problems.

Table 10. Collinearity statistics

H	Independent variables	T	VIF
H1	Business volume (BV)	0.108	9.289
H2	Legal form (LF)	0.857	1.167
H3	Activity sector (AS)	0.796	1.257
H4	Geographic location (GL)	0.844	1.185
H5	Media rankings (MR)	0.110	9.091
H6	Business sector (BS)	0.591	1.693
H7	BCSD members (BM)	0.542	1.846
H8	UNGC members (UM)	0.763	1.311
H9	Action area (AA)	0.677	1.477
H10	Sustainability reports (SR)	0.623	1.605

Note: H, Hypothesis; T, Tolerance; VIF, Variance Inflation Factor.

Holistically, the statistical results obtained from the application of the estimation model (i.e., BLRM), especially the Wald test, show, with significant statistical evidence (*p*-value < 0.05), that three (3) independent variables or explanatory variables (BS, BM, and SR), contribute very significantly to the estimated values of the category one (1), designated as "more prominent", of the binary dependent variable or response variable ($SDRsDI_{(0,\ 1)}$), when adjusted to the *logit* function (*Logit*). However, the statistical results based on the Hosmer and Lemeshow test suggest that the proposed regression model (i.e., BLRM) has a low adjustment power. Table 11 resume all the main statistical results obtained from the hypothesis test according to the BLRM used. Hence, we accept three hypotheses (i.e., H6, H7, and H10) and reject seven hypotheses (i.e., H1, H2, H3, H4, H5, H8, and H9).

Table 11. Statistical results obtained by the application of hypothesis testing

Research hypotheses tested with the binary logistic regression model (BLRM)									
H1	H2	H3	H4	H5	H6	H7	H8	H9	H10
Reject	Reject	Reject	Reject	Reject	Accept	Accept	Reject	Reject	Accept

Note: H, Hypothesis.

5. Discussion

Globally, the statistical results of this study show that only 235 (33.7%) organizations from a universe of 698 certified Portuguese organizations (QEOHS) usually publish and disclose institutional reports (published from 2015 to 2018) in their institutional website accessible on the World Wide Web (WWW).

Additionally, we verified with this research that the accounts report, disclosed by 129 (54.9%) organizations (QEOHS), as well as the sustainability report, disclosed by 106 (45.1%) organizations (QEOHS), are the two institutional reports whose publication and dissemination on the institutional website is more frequent. Therefore, the current results are completely in line with other previous research (e.g., Carvalho et al., 2018, 2020; Fonseca & Carvalho, 2019; Fonseca et al., 2023). Furthermore, both the institutional reports are associated with the disclosure of information about SD at the organizational level (see Carvalho et al., 2019; Fonseca & Carvalho, 2019; Fonseca et al., 2023).

In this context, the content analysis of the institutional reports (latest version available) allowed qualifying and quantifying all the thirty-six subcategories of analysis (36 GRI items) that support all the items (GRI items) referring to the disclosure of SDRs by the organizations (QEOHS). Consequently, the results obtained demonstrate the importance of establishing and adopting indicators and indices to measure the disclosure of SDRs, based on the categories and subcategories of analysis, aligned with the three dimensions of the SD, that is, EES (Apriwandi & Fahria, 2022; Calabrese et al., 2019; Ching & Gerab, 2017; Fonseca et al., 2023; Gallego, 2006; Kolsi et al., 2021; Lambrechts et al., 2019; Mihai & Aleca, 2023; Pacheco et al., 2020; Saber & Weber, 2019; Strezov et al., 2017; Tarquinio et al., 2018; Yang et al., 2020).

Overall, the current research shows that 476 (22.1%), 648 (30.0%), and 1,035 (47.9%) items (GRI items) were reported in the scope of the economic, environmental, and social categories (GRI standards), respectively. For this reason, the ranking of the five most frequent items related to the disclosure of SDRs (i.e., the top five of the GRI items) is composed by: (*i*) "economic performance" (GRI 201); (*ii*) "employment" (GRI 401); (*iii*) "effluents and waste" (GRI 306); (*iv*) "occupational health and safety" (GRI 403); and (*v*) "energy" (GRI 302), whose SDRs (GRI items) were disclosed by 167 (71.1%), 135 (57.4%), 108 (46.0%), 104 (44.3%), and 102 (43.4%) organizations, respectively. So, our results are moderately in line with other works (Apriwandi & Fahria, 2022; Fonseca et al., 2023; Kolsi et al., 2021; Lambrechts et al., 2019; Mihai & Aleca, 2023; Pacheco et al., 2020; Saber & Weber, 2019; Yang et al., 2020). Additionally, we found that the SDRs (GRI items) most disclosed by organizations are also valued by the stakeholders (Bastas & Liyanage, 2019; Calabrese et al., 2019).

Finally, we show with significant statistical evidence (p-value < 0.05) that the profile of the 235 certified Portuguese organizations in QEOHS, in which the disclosure of SDRs is more prominent, is formed by organizations (QEOHS) that belong to the public business sector (see H6 accepted), that belong to economic groups that are members of the BCSD Portugal (see H7 accepted), and that disclose their sustainability reports on the institutional website (see H10 accepted). Therefore, our results are moderately aligned with other previous research (see Carvalho et al., 2019; Fonseca & Carvalho, 2019).

6. Conclusions

Holistically, this investigation provides valid statistical results that contribute to new knowledge that explains and answers our two research questions (RQ1 and RQ2). So, the main conclusions are presented below.

Nowadays, the disclosure of SDRs through institutional reports, published and disclosed on the institutional website of the certified Portuguese organizations in QEOHS, is very important to demonstrate the "legitimacy"

(Suchman, 1995, p. 574) that grounds and sustains the "social contract" (Guthrie & Parker, 1989, p. 344) established between the top management of an organization (QEOHS) and its interested parties, thus aiming to achieve the "business continuity" (Asif et al., 2011, p. 354). Hence, the results show that the accounts report and the sustainability report are both the institutional reports most used in the disclosure of SDRs by organizations (QEOHS). So, this finding corroborates the idea that the accounts report and the sustainability report are relevant for the disclosure of SDRs at the organizational level (see Carvalho et al., 2018, 2019, 2020; Fonseca & Carvalho, 2019; Fonseca et al., 2023). Thus, the results suggest that the need for an organization to disclose its SDRs to stakeholders, through reports, is aligned with the assumptions of the legitimacy theory (see Ching & Gerab, 2017; Lai et al., 2016).

Additionally, the five SDRs (i.e., GRI items) most disclosed, through institutional reports, refer to "economic performance" (GRI 201), "employment" (GRI 401), "effluents and waste" (GRI 306), "occupational health and safety" (GRI 403), and "energy" (GRI 302). All the five SDRs are classified as "highly important" aspects for the top management and others stakeholders (see Calabrese et al., 2019, pp. 1027–1028), which corroborates the argument that "the communication with stakeholders is also important for legitimacy reasons" (Asif et al., 2011, p. 363). So, the need for an organization to disclose its SDRs to stakeholders is based on the assumptions of the stakeholder theory (see, e.g., Garvare & Johansson, 2010; Steurer et al., 2005).

Furthermore, the profile of the organizations (QEOHS), in which the disclosure of SDRs is more prominent, includes all organizations that cumulatively satisfy three conditions: (*i*) belong to the public business sector; (*ii*) belong to economic groups that are members of the BCSD Portugal; and (*iii*) disclose their sustainability reports on the institutional website. In this study, the three mechanisms of "institutional isomorphism" (DiMaggio & Powell, 1983, p. 150) that validate the main assumptions of the institutional theory are fundamental to explain the mapped profile. So, the "coercive isomorphism" (Martínez-Ferrero & García-Sánchez, 2017, p. 103) is very relevant to explain the presence of organizations that belong to the public business sector (see Carvalho et al., 2019; Rodrigues, 2012). Thus, it is important to mention the legal obligations imposed by the government of the Portuguese State through the Decree-Law No. 133/2013, of 3 October (Carvalho et al., 2019; Rodrigues, 2012). In turn, the "mimetic isomorphism" (Martínez-Ferrero & García-Sánchez, 2017, p. 105) is very important to explain the presence of organizations that belong to economic groups that are members of the BCSD Portugal (Carvalho et al., 2019; Rodrigues, 2012). Recently, "the mimetic isomorphism has been encouraged in Portugal by the BCSD" (Rodrigues, 2012, p. 59). Thus, the BCSD promotes among its members the need to disclosure of SDRs (Carvalho et al., 2019; Mani et al., 2018; Rodrigues, 2012). Additionally, the "normative isomorphism" (Martínez-Ferrero & García-Sánchez, 2017, p. 104) is considered essential to explain the presence of organizations that disclose their sustainability reports on the institutional website (Carvalho et al., 2019; Fonseca & Carvalho, 2019; Rodrigues, 2012; Tarquinio et al., 2018). Overall, the ISO MSSs promote the SD through the normative isomorphism (Heras-Saizarbitoria et al., 2010). In turn, the GRI standards exert a "normative pressure" on organizations (Tarquinio et al., 2018, p. 16). So, the GRI promotes the disclosure of sustainability reports through the "normative mechanism" (Tarquinio et al., 2018, p. 5). However, the "mimetic mechanism" and "coercive mechanism" also contribute to disclose of the sustainability reports on the website (Tarquinio et al., 2018, p. 5). Hence, the institutional isomorphism contributes to the disclosure of SDRs through institutional reports (see Martínez-Ferrero & García-Sánchez, 2017; Tarquinio et al., 2018).

According to the current context, it is argued that the certified Portuguese organizations

(QEOHS) that integrate the mapped profile present a global strategic vision based on the commitments towards SD (Carvalho et al., 2019). Moreover, these organizations adopt strategic planning of the resources (financial, human, and material) oriented towards SD through the MSs (see Carvalho et al., 2019), whose main purpose is achieve a "sustained competitive advantage", as proposed by the RBV theory (Barney, 1991, p. 102). Hence, it is suggested that the mapped profile in this investigation work should be analyzed and understood through an integrated approach to the premises of the institutional theory and of the RBV theory (Escobar & Vredenburg, 2011; Lai et al., 2009; Shibin et al., 2020).

Finally, this research work is only an initial contribution to expanding the our scientific knowledge, and the work suffers from some limitations, such as the sample is restricted to 235 certified Portuguese organizations in QEOHS, and the research is restricted to the disclosure of SDRs without evaluate actual performance. Moreover, the organizational factors, such as resources and capabilities, were not investigated. In this way, it is recommended to replicate this research in other international contexts to analyze and assess if these results and conclusions can be generalized to other countries (i.e., contexts).

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Filipe Carvalho
Polytechnic University of Cávado and Ave, Barcelos, Portugal
fcarvalho@ipca.pt
ORCID 0000-0003-0234-4547

Luis Fonseca
Polytechnic of Porto, Porto, Portugal
lmf@isep.ipp.pt
ORCID 0000-0001-5668-0656

Gilberto Santos
Polytechnic University of Cávado and Ave, Barcelos, Portugal
gsantos@ipca.pt
ORCID 0000-0001-9268-3272