

Competencies for Sustainable Development Goals Accounting: Educating public management for disclosure and reporting

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Abstract

Identifying competencies to report SDGs in accountants can enhance corporate disclosure effectiveness and provide more robust information to society. Public managers are called to control through the lens of collective objectives and multiple stakeholders' interests. Based on the knowledge-attitude-skills triad and the political Delphi method, we could identify the antecedent factors to disclose SDGs successfully. The purpose was critical to developing competencies, aligning leaders' mindsets, and suppressing public management barriers to reporting corporate SDGs. By identifying specific competencies, we bring the individual perspectives of accounting sustainability education.

Keywords: Competencies, Sustainable development goals, Sustainable accounting, Sustainability education, Sustainable Reporting, Sustainable accounting compliance,

1. Introduction

Since its conception, sustainable development (SD) has become central in academic and corporate spheres. Protecting future generations and ensuring the same civilizing standards of today (Brundtland, 1987) involves economic, social, and environmental commitments (Elkington, 1994) in a win-win dynamic between organizations and individuals. Institutionally, the United Nations (UN), the World Bank, and the World Trade Organization

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(WTO) were important global front-line actors in the governance and dissemination of actions and undertook SD as their primary political objective (Matsushita & Schoenbaum, 2015).

Until 2015, the debate on SD surrounded the issues of reaching non-specific objectives with relative dispersion. The Sustainable Development Goals (SDGs), more specific and interdisciplinary than their predecessors, the Millennium Goals (MDGs), brought an action plan that must be addressed by organizations and public management (Nilsson *et al.*, 2017). The global warming crisis, globalization, the post-pandemic scenario, and the onset of the digital revolution are trends already foreseen by academia in the ontology of events that expose how the physical, biological, economic, and social systems are interrelated. Moreover, above all, how thinly balanced these forces are when under an impact of extreme magnitude (Atik *et al.*, 2023; Murali *et al.*, 2023).

For that, organizations have an apparent intention to compel SDGs Agenda. The “best” organizations seek greener through integrated reports, certifications, partnerships, and new, cleaner products and processes (Lans *et al.*, 2014). On the other hand, terrible disasters occur within these organizations, reflecting severe failures in their managers’ and accountants’ responsibility, such as the rupture of the Mariana and Brumadinho dams that killed more than 300 people in Brazil. The company responsible for these tragedies had fancy and complete sustainability reporting raising some failures or, at least, some clues of greenwashing in their disclosing reports.

Thus, despite their well-intentioned efforts, not often do managers and accountants fail to legitimate sustainable practices by SDGs disclosing reporting (Elalfy *et al.*, 2020). While recognizing the progress that SDGs have brought to the way public and private policies are formulated, the consistent difficulties in complying with and reporting robust indicators (Avrampou *et al.*, 2019; Dickens *et al.*, 2019; Erin *et al.*, 2022; Hansson *et al.*, 2019). Simply enforcing the 2030 Agenda is a challenging task. It requires qualification and motivation (Martins *et al.*, 2022). The main challenges in the transition to sustainability in organizational reporting rely in the individual level, of human competencies’ shortcomings (Dalton, 2020; Kjellgren & Richter, 2021).

Among the many difficulties for accountants and managers, we can identify a) the complexity of 169 goals dealing with different subjects (Joshi *et al.*, 2015), b) a basic knowledge of data analytics (Sierra García *et al.*, 2022), c) the myriad of SDGs frameworks (Erin *et al.*, 2022; Sætra, 2021; Tsalis *et al.*, 2020), c) the addressing of marketing purposes with the reporting, and,

d) employees' sensibility and motivation to comply with the Agenda (Flores *et al.*, 2022).

Organizational transition to sustainability is directly linked to the capacity to promote individual competencies among employees, shaping a new corporate culture (Bask *et al.*, 2020; Dyllick & Hockerts, 2002). In this sense, an emergency light goes on when discussing public accounting managers' capability to comply with sustainability through reporting (Leal Filho *et al.*, 2022), especially with the SDGs Agenda. Aside from technical skills and the bureaucratic process of public management connected to knowledge, competencies related to individual morals, values and abilities are inflection points for changing attitudes in favor of the DS (Florea *et al.*, 2013; Molderez & Ceulemans, 2018; Shrivastava, 2010).

The competencies for sustainability (Lambrechts *et al.*, 2013; Wiek *et al.*, 2011) involve the purposes beneath the limits of public management techniques (van Marrewijk & Werre, n.d.). On the other hand, the pedagogical development of competencies is structured on discussions involving competence scales, teaching methods, and expected results (Agirreazkuenaga, 2020; Aleixo *et al.*, 2018; Grant & Lips-Wiersma, 2017). Investigations discussing how organizations, especially public organizations, can develop human competencies are increasingly needed, while there is an open debate on properly incorporating a broad agenda in sustainability reporting (Martins *et al.*, 2019).

The human development of managers and accountants is one of the critical factors for developing more robust and accurate reporting. (Demssie *et al.*, 2019; Grant & Lips-Wiersma, n.d.; Molderez & Ceulemans, 2018). Nevertheless, there is a long road ahead for research efforts to break through the barrier to implementing education for sustainable development (ESD) based on non-cognitive competencies (Brandt *et al.*, 2019; Sabbir & Taufique, 2022; Zhou, 2017). What we are sure of is that disclosing sustainability is critical to share and stakeholders' interests (Milne & Gray, 2013), and a higher-level of quality in this process is directly linked to the individual development of accountants (Boiral *et al.*, 2019).

Often, public management is considered the primarily agent of change in society for sustainable development (Martins *et al.*, 2022). However, state owned companies fight against institutional pressures in disclosing non-financial information to society (Ligorio *et al.*, 2022). State ownership significantly affects this process, leading them to disclose less sustainability information than partially state-owned or private companies (Argento *et al.*, 2019). Political pressures on public accountability intensify tensions around

public managers' behaviour and the debate on how public managers can overcome institutional logic (Capalbo *et al.*, 2021).

In addition, the literature on sustainable accountability in public management is scarce (Haigh and Hoffman, 2014). Sustainability reporting on public management focuses on identifying different methods (Williams, 2015), addressing environmental indicators (Qian *et al.*, 2011) and stakeholder engagement (Kaur & Lodhia, 2019). Preliminary insights are on the antecedents of sustainability reporting (Lodhia & Jacobs, 2013), mainly found in the organizational level of analysis. Although public management exists in many different contexts worldwide, previous research has focused on single regions without extensive knowledge of standardized systems (Papenfuß *et al.*, 2018) or narrowed to qualitative approaches (Argento *et al.*, 2019).

Sustainability accounting, accountability and reporting in the public sector disclosure still need to be explored for not presenting consistent evidence of the role of public accountants, taken as economic and social agents, in disclosing sustainability. Human competencies can be a prominent path to investigate the phenomena, using a quantitative approach to fulfil open spaces in the individual level analysis, highlining the role of the accountant in this process.

For instance, human competencies for sustainability are more often described in the literature to the knowledge of private organizations, whereas no literature shows a specific approach individual-level on public management, especially about the reality of emerging economies (De Carvalho *et al.*, 2015; Heiskanen *et al.*, 2016; Wolf *et al.*, 2022).

To this end, we question “How to develop competencies in accountants for report SDGs in their organizational disclosing process? We identify the antecedents of human competencies to sustainability in organizations within public management using a sample of accounting managers from municipalities in Brazil.

Governments in its three spheres (municipal, state, and federal), non-governmental organizations (NGOs), industry associations, companies or for-profit organizations, universities, regulating agencies or autarchies, different institutional arrangements for group representation, and, finally, individuals are involved in the problem and co-responsible for the solution. Nevertheless, a more widespread assembling and activity coordination fall under the public administration's responsibility, considering its relevance to the social and economic context.

The first step for implementing the Agenda is, no doubt, qualifying professionals to make decisions favoring SD. However, unfortunately, little is known about the public accountant's level of understanding regarding SDGs,

let alone how the public servants place themselves as agents of change and even less about how capable that servant would be of managing large-scale data to subsidize new policies. The predecessor of the SDG good reporting is the development of human competencies for this procedure. Developing competencies in public servants can stimulate sustainable development in organizations by activating personal motivations (Patro, 2020).

The paper is structured in sequential sections from the theoretical foundation, going forward to the methodological explanations describing the procedures in this research to reach the final discussion and conclusions on the subject.

2. Literature review

Management accounting and control in the public sector emphasizes that the public sector operates differently from private companies and non-profits due to its role in executing public policy. This specific practice is portrayed as intricately tied to politics, leading to unique forms of budgeting, cost accounting, and performance management (Pollanen, 2011). Accountants primarily deal with internal financial information and support managerial decision-making through cost analysis, budgeting, performance evaluation, and financial forecasting. In contrast, public accounting deals with external financial reporting for various clients, offering services like auditing, tax preparation, financial consulting, and forensic accounting. Nevertheless, distinct focuses, work environments, and competencies sets are required for these two accounting branches.

Sustainability accounting meets public management accounting for pursuing the same common future and collective interests. In this sense, accountants, when certified or working in public management, tend to picture themselves as more ethically oriented than their peers (Ward, 1993), while no differences between public and private organizations were found when it comes to hiring and promoting employees based on their technical skills (Ragland, 2014). Also, public commitments and welfare promotion are essential objectives that guide their professional duties.

While public management offers a strongly regulated environment for new management and accounting methods, public accountants are pressured to disclose SDG information in public reporting adequately.

Their capacity to acquire new competencies individually is vital to successfully reporting, embracing this complexity and reaching broader com-

munication and legitimacy objectives. Enabling conditions (accounting capabilities, profession and digitalisation) is one rich lens to understand, from a plurality of perspectives, the antecedent factors that can stimulate accountants' competencies and their complicated responsibility to report SDGs information under public management context.

2.1 Competencies in sustainability reporting

The term competencies repeatedly appear in the daily life of individuals and companies. However, the concepts that make understanding the terms possible are relatively fragmented, making it difficult to standardize the audience's understanding. McClelland (1990) and Boyatzis (1982) initially related the term to an individual's performance, while French authors like Zarifian (1999) and Le Boterf (1995) describe the word "competence" based on the relationships and environmental variability.

Prévot *et al.* (2010) analysed the definitions of competence and highlighted three aspects concerning the purposes "Competency is a complex organizational tangle arising from interactions between knowledge, practices, and attitudes". Competencies consist of knowledge, skills, and attitudes that enable the successful performance of the task (Fleury & Fleury, 2001; Mulder, 2014). In Brazil, the idea of KSA (competence as a set of knowledge, skills, and attitudes) was initially disseminated by Fleury and Fleury (2001) based on studies by Parry (1996).

In general terms, Parry (1996) and Brophy & Kiely (2002) present the basic competencies model: knowledge-skill-attitude, the most cited models in management and accounting sciences. With this approach, Parry (1996, p.50) summarizes the concept of competencies as "a cluster of related knowledge, skills, and attitudes that affect most of a function (a role or responsibility), that correlate to the performance that can be measured against parameters.

This model can be more detailed as K = Knowledge (knowledge acquired throughout life, in schools, universities, courses, etc. ex: Knowledge of the competition and negotiation technique); S = skills, how to do (the ability to perform a specific physical or mental task, ex: Competition analysis and negotiation); A = attitudes, intention to do (behaviours we have in the face of everyday situations and the tasks we carry out in our day-to-day activities, ex: Participating in competition and negotiating) (Brophy & Kiely, 2002; Parry, 1996).

In general, competencies for sustainability stimulate participatory processes, empowering governance structures and encouraging and promoting feedback cycles that institutionalize changes (Barth *et al.*, 2007). However, attention is drawn to the need for change in how individuals work. Changing in favour of sustainability is breaking a paradigm of the pure practical concept and seeking maximum efficiency (De Carvalho *et al.*, 2015).

In the same way, the World Council for Sustainable Development (WBCSD, 2008) understands that competencies for sustainability are comprised of individual preparation for the inclusion of needs and the aspirations of different interest groups and the promotion of balance and recognition of rights. According to the agency's report, critical competencies for sustainability follow the knowledge-skill-attitude scheme by Parry (1996) and Brophy & Kiely (2002). In this same sense, Fleury & Fleury (2001) define societal competence as responsible and recognized knowledge, which implies mobilizing, integrating, and transferring knowledge, resources, and abilities that add economic value to the organization and social value to the individual.

Competencies focused on sustainability should add value to the organization, the individual, society, and the environment (De Carvalho *et al.*, 2015). The authors state that the need to expand the consequences of decisions made by employees for social purposes, aside from the organization, can make them more autonomous and ready for changes. The most critical competencies involve understanding the interdependence between companies and society, knowing how to deal with diversity, and being open to joint discussions and solutions built through dialogue (Hind *et al.*, 2009).

Sustainability change will contest the basis of organizational values and, as a result, power and cultural structures. When seeking to reach the Triple Bottom Line (Elkington, 1994) in its strategic matrix, organizations begin to accept new rules that pertain to meeting social and ecological needs more than their growth and profit-generating interests.

In this context, education is the only way to promote a revolution in habits and processes. Education can guide people to reflect and act according to a critical and emancipatory perspective, rupturing the traditional system of business as usual (Springett, 2005).

For the company to achieve full development, managers and accountants should have specific competencies and deliveries to conduct other individuals towards the same organizational goals (De Carvalho *et al.*, 2015; Hind *et al.*, 2009). In specific contexts such as emerging economies (Goulart *et al.*, 2021a; Goulart *et al.*, 2021b) or public administration, changes have more institutional barriers to overcome.

In short, the generalist competencies for the sustainability field (Wiek *et al.*, 2011) can be summarized in two changes: one aimed at the individual who should rationalize systemically, understanding the complex systems of economic, environmental and social; the second based on the organizational level itself, meaning that, for the individual to be able to act effectively, the organization should have internalized sustainability values or, at least have the intention of having them to make the necessary process changes feasible. However, some changes after the SDGs occurred accelerating the pace of this change (Quiroz-Niño & Murga-Menoyo, 2017).

Nevertheless, the contributions that tackle factors that compose the competencies for reporting sustainability point to the identification of the main themes that deserve emphasis, such as the excellent use of data resources, collaborative work, formal training, qualification of the professional, communication, positive relationships, support articulation, team collaboration, decision-making, and management process (Maas *et al.*, 2016; Munzarova *et al.*, 2022). In this sense, the non-cognitive competencies appear fundamental for the sustainability disclosure and reporting (Caniglia *et al.*, 2016). Rimanoczy (2020) developed a competency-based model that goes beyond technical competencies, incorporating emotional aspects and other non-cognitive paradigms corroborating with Shrivastava (2010) and the need of a passion for sustainability. This passion can only be developed through a holistic pedagogy integrating physical and emotional learning with traditional cognitive knowledge about sustainable management.

Literature contributions demonstrate a wide range of focuses and methods, and theoretical repertoires to approach the issue that is the object of this research. As such, despite important themes regarding SDGs competencies, it was defined that the work will follow the premises imposed by the theoretical reference, remaining with the most traditional and cited construct of Parry (1996) and Brophy & Kiely (2002). This view is justified to fill the literature gap, considering the greater theoretical, empirical, and social importance since it meets the needs of organizations in understanding how to comply with the Agenda of its managers and employees. In addition, it was found that international literature presented the theme in a way that is more aligned to the education context than studies that report experiences or propose competence development models for the 2030 Agenda and SDGs in organizations.

Educational models for developing SDG competencies in managers and accountants need to demonstrate skills and the difficulties of individual qualification. As a definition, we adopted the general and classical concept of Parry (1996) (Table 1).

Table 1 - The triad model explained

Factors	Metrics	Description	Sources
Knowledge	Data Management	Statistical perspicuity, critical analysis of data, communication and synthesis mastery, and proficiency in proposing new solutions	Munzarova S., Kostalova J., & Fialova E. (2022).
	Formal training	schooling, study level, dimensions of training, hours of corporate training	Maas K., Schaltegger S., & Crutzen N. (2016) Perego P., & Kolk A. (2012)
	Qualification	background in sustainability management, specialization, and domain in accounting reports	Zanellato G., & Tiron-Tudor A. (2021); Farooq M. B., Ahmed A., & Nadeem M. (2018)
Skills	Communication	Transmitting a message and eventually receiving another message in response.	Probst <i>et al.</i> (2019); Urban & Naidoo (2012); Girella L., Zambon S., & Rossi P. (2021)
	Positive relationships	Being responsible in relationships, positive thinking styles, attentive listening, expressing gratitude, and dealing with difficulties	Anshari M., & Hamdan M. (2022), Boiral <i>et al.</i> (2020)
	Support articulation	Influencing people to achieve a goal and convincing them to follow a particular line of work	
	Team collaboration	Share responsibilities and efforts to solve problems.	
Attitudes	Decision-making	choice or intention to obtain some result under specific resources and information	Subramanian K. R. (2017)
	Management Process	discipline in which people use various methods to discover, model, analyze, measure, improve, optimize, and automate business processes	EIHaffar G., Durif F., & Dubé L. (2020); Boiral <i>et al.</i> (2020)

Source: authors

Figure 1 presents the literature’s identified constructs and metrics presented in recent studies, derived from the KSA model of Brophy & Kiely (2002) and Parry (1996) to report SDGs organizational performance.

2.2 Sustainability Accounting

Sustainability, seen as a concept that seeks to establish the relationship between the continuity of human activities on Earth and the resulting reduc-

tion of the impacts inherent to these processes, has, in accountability, an essential ally for the dissemination of organizational information that enables its communication with society (Brown, 2009; Cho *et al.*, 2020). Organizations, in turn, have increased interest in disclosing information related to sustainability and seeking to establish criteria that ensure greater credibility and transparency in this information (Schaltegger & Zvezdov, 2015). Establishing this communication, however, is imbricated in a series of characteristics linked to Sustainability accounting, that is, an accounting practice that seeks to ensure means for organizations to effectively communicate to stakeholders the disclosure resulting from their environmental and social practices with the issues related to sustainability (Boiral *et al.*, 2019).

Within sustainability reports, organizations have a way of expanding communication with stakeholders to ensure legitimated information that demonstrates its environmental disclosure (Monteiro *et al.*, 2021). Initiatives such as the Global Initiative (GRI) and the International Integrated Reporting Framework (IIRF) has been adopted as incremental innovation that contributes to a new perspective on reporting and disclosure of accounting data (Hsiao *et al.*, 2022).

However, O'Dwyer and Owen (2005) bring a critical perspective of analysis of the efficiency of these reports when they understand that the organizational intention of valuing its image in the market often subdues the potential contribution of accountability as a form of ensuring the credibility of the data made available to stakeholders. Furthermore, from a more dialogic perspective, sustainability accounting and reporting hold a solid potential to minimize the substantial and merely managerial perspective that pursues social responsibility initiatives and socially responsible investment (Diouf & Boiral, 2017) communications to the market (Rankin *et al.*, 2011). Instead, this argument opens space for a deeper discussion about how accountability, more specifically, sustainability accounting, may create ways of disclosing data and accounting information of organizations to increase their credibility in the market and society (Maroun, 2017). Based on the growing demand for organizational reports, there is a concern regarding the training and development of professionals and future professionals who dialogue with society, demonstrating from credible data how organizations have played their role in line with sustainable perspectives.

Considering accountants' education and the possibilities that sustainability accounting brings to the disclosure of accounting information, we emphasise the critical understanding of this accounting instrument from the perspective of communication quality with stakeholders (Diouf & Boiral, 2017; Maroun, 2017; Bellucci, 2019). Sustainable disclosure and its correlation

with the company performance (Clarkson *et al.*, 2008; Schaltegger & Zvezdov, 2015; Moteiro *et al.*, 2021), the need to index and follow the guidance of international entities such as GRI (Stefanescu, 2022) and IIRF (Hsiao *et al.*, 2021) led to greater credibility and legitimacy regarding the information disclosed to the market and society (Rankin *et al.*, 2011; Diouf & Boiral, 2017).

Thus, the specificity but interdisciplinary characteristic that education for sustainability accounting must have needs to be clarified. We need robust methods to achieve impactful results to develop ethical leaders who seek to establish an explicit and legitimate dialogue with society (Cho *et al.*, 2020). Conclusively, this work seeks to establish a discussion from this theoretical contribution that encompasses Sustainability accounting and individual education to address new perspectives in accountants' performance.

3. Research method

Considering the triad definition of competence (Parry, 1996; Brophy & Kiely, 2002) as our theoretical archetype, we proceed with the Delphi Method to find empirical information.

3.1 Data Collection and Method Procedures

The Delphi method is a qualitative research technique that seeks a consensus regarding a specific definition or concept. It is used when there is a lack of clarity regarding a particular phenomenon, and experts' opinions are sought to analyze the subject. The technique is designed through questionnaires (structured or not) in which several rounds were held to reach a consensus of answers (Kayo, Securato, 1997; Landeta, 1999). The difference between Delphi and interviews or surveys is that the answers from the experts are compared, and the results are presented in sequential rounds until a subject is clarified. Commonly, this method is employed for technological forecasting or something that has not yet materialized in the present (Facione, 1990; Linstone & Turoff, 2002).

Our experts' samples were chosen based on criteria that considered two main characteristics: a) being a senior accountant of a municipality in Brazil for at least five years; b) taking part in a project related to the SDGs on public management. Thus, the National SDGs Commission (CNODS) members were connected by their registration data on the Partnerships and Means of Implementation (SDG 17) discussion group. Of the 25 experts, 11 answered

the first round, and 10 answered the second round. The sample is considered semi-convenient, meaning that the members from CNODS were accessed by the intervention of an officially requested database from the National School of Public Administration (Enap) in Brazil.

We conducted two instances of attendance at the National Conference of the National School of Public Administration (ENAP), during which we procured data directly from participants via a physical survey instrument. These data collection activities transpired on two discrete occasions: the initial occurrence transpired in January 2019, followed by a subsequent iteration in December 2019. These events were in Brasília, Brazil. The data acquisition endeavors were facilitated by the support of ENAP, which granted permission to distribute and administer the research questionnaire during designated sessions, each lasting approximately 30 minutes, optimizing the official presence of the municipal accountants in Brasilia at the Enap headquarters.

Initially, the first step was devoted to clarifying the main study questions of the model KSA (knowledge, skills, attitude) (Parry, 1996; Brophy & Kiely, 2002). Initial data analysis focused on whether participants agreed with or disagreed with the traditional triadic model of competencies. We develop a semi-structured instrument based on scales available and validated in the literature for sustainability management (Brandão & Guimarães, 2001; Brandão & Bahry, 2005; Cella-De-Oliveira & Takahashi, 2014). In the first round three open questions were asked:

- (KNOWLEDGE) Do you believe that public accountants know how to report SDGs? Why?
- (SKILLS) Are the accountants skilled to communicate, have positive relationships, support articulation and work efficiently in team collaboration?
- (ATTITUDE) Is reporting for SDGs something you would like to do in your municipality?

The second phase was then characterized by an effort to find agreement among the responses using a group evaluative strategy. In the second round of analysis, the audience was introduced to the main results of the first phase and based on them. They had to propose feasible alternatives to develop the barriers found in the first round. The research protocol of the second round was a formulaire to measure the level of agreement of the experts about the barriers to developing competencies and a open question inquiring them about feasible solutions they would suggest to the topic: “Today, there is much discussion around how to implement SDG training programs in public administration. In your expert opinion, what would be the best way to do it? Why?”.

The two-round method is compatible with the Delphi method principle. It allows the researcher to deepen the investigation based on the results of the first inquiry. The second round is a propositive phase when experts can freely argue about the topic, and this rich information is summarized for developing new insights in the field.

4. Results

The first round validated the model with the experts, following the sequence of variables KSA (knowledge, attitude, skills) (Parry, 1996; Brophy & Kiely, 2002). Experts expressed their opinions by answering their level of agreement or disagreement with the antecedent factors of competency.

4.1 First round

When asked their opinion about the level of **K**nowledge they have about SDGs, out of eleven, only two consider the accountants to know the SDGs meaning, arguing in general that the topic is new and that they received no training. In turn, they consider themselves qualified to the task regarding technical skills. Table 1 summarises the result of question 1 (Knowledge).

The second factor of the model is **S**kills. Skills in competence literature comprise communication abilities, positive relationships, support articulation and team collaboration. Experts express important concerns about the work environment of public municipalities, affecting their skill capacities directly. Most of them (8 of 11) consider themselves able to perform those skills. Nevertheless, they emphasise that for requiring high levels of interaction among their co-workers, leaders and operational staff, that dimension is not a single effort. They are unanimous in affirming that they consider it especially difficult because of the nuances of cultural aspects of the municipalities. Also, no different element was identified from their traditional control tasks to the SDGs reporting (table 2).

Table 1 - Results of the first round - knowledge (E - Expert)

Measured Variable	Excerpts examples	Identified organizational context antecedents
knowledge	<p>“Public accountants get approved through high standards thresholds to be a public employee. They are very well qualified. Typically graduated from the best accounting courses in Brazil” E (1).</p> <p>E1 states that “information about SDGs in this sense is very recent”, and E4 indicates that “they might know, but they do not feel sufficiently responsible for any related objective” (E2)</p> <p>“Even if there is some knowledge of the subject from employees and their role connected to SDGs, the accountants would not know how to disclose practices or data about SDGs, especially without any orientation, policy or training.” (E3).</p> <p>“More resistance comes from older public accountants since the matter is new” (E6).</p> <p>“We are pressured to change every time a new law is approved. I do not see any difficulties about how to do a report” (E8)</p> <p>“SDGs are a new theme, we are not prepared to report, we need to understand the topic better” (E11).</p>	<p>New theme</p> <p>Absent of training</p> <p>Adequate technical qualification</p>

*E (1 to 11): Expert 1, 2; N. *Source:* authors

Table 2 - Results of the first round - Skills (E - Expert)

Measured Variable	Excerpt	Identified organizational context
skills	<p>“We practice every day, but it is a very informal thing among the processes we have to fulfil”</p> <p>“I do not see any connection with these skills when producing a special report, this is required to work in any circumstances”</p> <p>“sometimes the control process can intimidate social interactions, so I think that this would be the most difficult part in any municipality”</p> <p>“All accountants have to have these skills, for sure, for any task”</p> <p>“This is not about the role of the accountant, it is something that the management deals”</p> <p>“It depends, there are municipalities that are very dynamic and efficient, but the majority of them does not have any special program for this kind of skill”</p> <p>“In my opinion it is something beyond the role of the accountant if the municipality wants us to develop social skills, they need to offer support or training”.</p>	<p>Leadership</p> <p>Management support for the development of social skills</p>

*E (1 to 11): Expert 1, 2; N.

Source: authors

The last factor of the model KSA is attitude. Attitudes are conceived as the decision-making process and by the Management Process. In other words, a choice or intention to obtain some result under specific resources and information combined with a discipline in which people use various methods to discover, model, analyze, measure, improve, optimize, and automate business processes. (ElHaffar, Durif & Dubé, 2020; Boiral *et al.*, 2020).

Table 3 - Results of the first round - Attitude (E - Expert)

Measured Variable	Excerpts	Identified organizational context antecedents
attitude	<p>“Brazilian municipalities have been through cloudy and uncertain periods (E1).”</p> <p>“Brazilian municipalities are broken. (E6)”.</p> <p>“I find it challenging to disclose sustainability projects within the context of the scarce resources of Brazilian municipalities.” (E2)</p> <p>“Most senior accountants are still embedded in legal compliance and cannot innovate and use what they know. This a tough situation in all Brazilian municipalities” (5).</p> <p>“We are already overloaded, it is hard to change the mind of people to become attractive to new challenges, the daily routine is already overwhelming” (E6)</p> <p>“Accountants to do only what is asked by law, only basics compliance” (E1)</p> <p>“It should be very commendable, but there is an eminent risk of political influence on this task. The reports are often used to promote political actions” (E4).</p> <p>Experts 2 and 9 (E2 and E9) mention that “politics” may compromise the reliability of the disclosing process.</p>	<p>lack of resources</p> <p>overwhelming workload</p> <p>politics</p>

*E (1 to 11): Expert 1, 2; N.

Source: authors

None of them, as expected, clearly declared a negative attitude against the SDGs reporting. However, they indicate some contextual problems of public management as barriers to performing it effectively.

The first one is the financial problem. The second one is politics and, hence, the third is overwhelming routine to be complied with law.

Experts also emphasise the issue of involving the Agenda in partisan disputes. As such, there is still confusion that the Agenda might be a political project within the offices, which will fatally influence the motivation of public accountants to contribute to its development. Experts reinforced that the

public accountant is usually overloaded and tends to resist change, especially with senior accountants.

4.1 Second round

On the second round of the Delphi Method, experts were called to propose alternatives to develop competencies to report SDGs in public management based on the identified factors of the first round. The only point that was considered positive in their perception was accountants' technical qualification. As the the only positive driver, technical qualification was excluded from the barriers factors to develop such competencies.

Table 4 - Second round results - validation of barriers factors

Barriers Factors	Indicate the level of agreement with the presented barrier of your municipality to develop human competencies in reporting SDGs (1 - totally disagree to 5 - totally agree)*
New theme	24
Absent of training	50
Quality of Leadership	35
Management support for the development of social skills	22
Financial resources of the municipality	46
Overwhelming workloads	50
Politics	29

* simple average, 10 experts

Source: authors

It is possible to analyze that “Management support for the development of social skills” and the “New theme” were barriers that received less than 25 points, the others were validated by the accountant's sample. This means that the dimension of Attitude was completely validated whereas the other two, skills and knowledge show differences from the original model we based our research, the KSA.

As already mentioned in the method section, during the second round we

provided an open space for the experts to express possible alternatives of how to suppress the specific barriers of the public management to develop the accountants to report SDGs.

Many suggestions emerged. Experts generally reveal that attractiveness is an essential factor. They point out that engagement is critical for success, entering the activities accountants perform daily, not just on a technical level.

Also, the teaching method appear as an essential factor of the training program. They propose employing of more dynamic methodologies such as gaming and awards and taking advantage of the accountant's high level of schooling. One of the experts also calls attention to awareness or "demystification of the theme," bringing information to hinder initial resistance.

"Public accountants can become more motivated and aware by removing them from their comfort zone. They need to understand the purpose of knowing the subject" (E2), "leaders need to promote more motivated and conscious employees, arguing for the reason for doing anything" (E5). If this is attractive to the employee, "those well-intentioned will inevitably adhere to it." Finally, for expert E7, the SDGs reporting is "an easy matter to discuss, but difficult to do" The possibility would be an alignment to topics closer to those already addressed by accountants daily. This idea is corroborated by expert 2 (E2), who understands that "the best way to training, because SDGs are typically unattached from the accountants' life, having a practical and unique template could be interesting"

Most respondents reaffirmed the importance of a more attractive, unconventional format that differs from the traditional lecture scheme. E1 reminds us: "We need fast format and hands-on teaching," a perception corroborated by E3, who understands that "training should bring awareness that the SDGs is already part of our routine, breaking the ice." In this sense, Expert E2 suggested new methods, mainly in a new environment that is not a classroom. Expert 4 also supported that the method must be different, consistent with "student-centered methodologies" and that "doing it in a new format could be interesting."

"I believe that most people are unknowledgeable (...) there should be a mechanism to foster the and facilitate the report" (E10)

Aside from these perceptions, other experts suggest active participation methods with accountants, and only E11 considers that, although the technique is essential, the theme should attract only interested accountants. Finally, E10 agrees that training should be consistent with the work hours, non-mandatory, and, if possible, should be included as the workload for career progression.

E7 provides some insights about the training method and how to engage accountants: “These courses end up leading to something boring... One more thing for us to do. It does not work. They need to understand the purpose of knowing the subject.”

In addition, the expert 4 emphasizes that accountants think this is a misunderstanding in their role in disclosing SDGs.

“Other countries and private companies should undertake the lead, setting aside the responsibility of public management for sustainable development.” E(4).

In sum, experts do not propose any articulation with third parties or any possible solution for the lack of resources and work overload, they centred their proposals on training methods, offering new ideas on how to link SDGs with their daily activities and stimulating accountants with active teaching approaches.

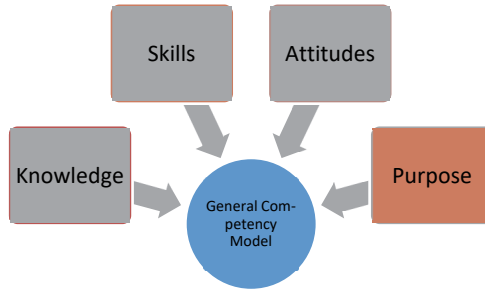
5. Discussion

Some discussions can be raised considering the hypothetical conditions provided by this sample data. Therefore, conceptual models for optimizing relationships between the elements are sought in deep discussions on the theme.

By the aggregated answers, we summarized that one more factor should be included beyond the triad of Parry (1996) and Brophy & Kiely (2002): knowledge-skills-attitude. The fourth variable of the construct is defined as purpose (figure 2). This means that even if they can execute the task, their tenacity can moderate for better performance (Parry, 1996; Brophy & Kiely, 2002). The characteristics of a training program are to optimize their qualification and reduce their demotivation, weakening up their willingness to social good, by individual purpose.

We add a variable as a construct proposition to the traditional models of Parry (1996) and Brophy & Kiely (2002) (figure 2). Purpose emerges as a new antecedent of competencies to report SDGs in accountants by the combination of literature insights (Dlouhá; Pospíšilová, 2018; D’Souza *et al.*, 2019; Fuertes-Camacho *et al.*, 2019; Corriveau, 2020) and the public management specialist statements.

Figure 2 – Purpose as a new variable in Parry (1996) and Brophy & Kiely (2002)



Source: authors

Literature on competencies presents recent evidence since 2016 that points to an emotional matter as being conducive to an attitude of “wanting to do.” Thus, this work explores a new theoretical idea to contribute to the model by Parry (1996) and Brophy & Kiely (2002), as demonstrated in the diagram in Figure 2. In this sense, the fourth construct was incorporated into the classic model as an stimulus because they value the SDGs as something aggregating to themselves and for society, not just as professionals or for corporate means.

There is an overall high qualification for the accountants. Accountants have a strong basis of technical knowledge and have no difficulties in writing, text interpretation, logical reasoning, or mathematics. That kind of gap would require more profound and technical training. Some respondents asked for a template that can be efficiently utilized by those provided by government agencies with guidelines for disclosing SDGs in public management. However, they state that difficulties are in dealing with specific software to produce the report. This is an important question to discuss, asking if layout and writing are exactly inside the expected competencies of accountants for SDGs reporting. A simple combination between Excel and a design (free) platform can be enough for this objective.

The identified gap in the attitude dimension of our model is much more aligned with the difficulty of coordinating, leading, controlling and disclosing any process or information than specific technical deficits. Instead, personal values positively relate to the agenda’s objectives, reinforcing individual engagement and motivation to report SDGs. Accountants are demoti-

vated by the workload, resource scarcity and organizational climate problems more than exerting effort to report the SDGs accordingly.

Some subjective behaviors will deserve a more specific approach, for example, the problem of being unable to negotiate and deal with political disputes. Sometimes, many excellent projects are overturned by a lack of adhesion to the idea of dominant groups in power. Therefore, it is also on the table the role of accountants in the responsibility to fight against this trend in their workplace. For this, options of training that consider political aspects, including themes such as negotiation, communication techniques, speech, counterarguing, and dramatic persuasion are welcome.

Regarding identifying the SDGs in daily professional activities, active learning methodologies and group development should be developed to break this resistance, as training is they consider it “boring”. This method is ideal for developing deficits presented in the sample, such as communication skills, teamwork, and collaborative focus. For example, we can invite the accountant to relate daily activities to SDGs Agenda fulfillment. From there, it could allow collaboration among the parties to elaborate the report.

Instead, the purpose dimension is one of the most challenging tasks. There is no evidence that training can change the personal values that an individual brings with him or her until that moment. All that is known is that, for an individual to be sensitized to a topic, they need to have information on the subject to, from there, conceive their own opinion on that subject. However, this opinion and the degree of orientation that this person may come to develop concerning sustainability will be intrinsically connected to their empathy and relationship with the subject in prior experiences, mindset, culture, and even religious and political orientation. Thus, respecting these limitations, active training can improve sensibilization success by using accountants' local reality, daily activities, and organizational peculiarities.

6. Recommendations for sustainability accounting practices

To meet the goals of developing competencies on all the information raised, we recommend four modules to a training program to public accountants.

1. Diagnosis of technical knowledge: the moderator applies a simple questionnaire of up to 30 multiple-choice questions in this step. The accountant reaches a score regarding the contents: i) Writing, ii) Text interpretation, iii) Logical reasoning, and iv) Mathematics.

2. Lectures on negotiation techniques: referring to negotiation techniques involving the content connected to communication, leadership, dialog, persuasion, and persistence to support the effectiveness of the political articulation.
3. Conversational experiences: The third module proposed a dialog experience that should count on previously prepared material to work on a sustainable development case (e.g., poverty, lack of education, and health services) specific to the organization or its geographic region. In the case of municipalities, the most important problems of public accountants should be prioritized, shortening the distances between their work and the Agenda.
4. Benchmarking to best practices: Companies that received awards that are part of GRI, Global Gap, Rainforest, and ISO 14.001 used to have complete reporting that is open access on their website. That material can be the basis of initial development and provide mature insights into other companies that have already published reports aligning operations with SDGs.

We comprehend that organizational culture will be a filtering characteristic concerning the difference in desirable and viable routine actions, considering that the more intense the orientation for sustainability and the flexibility in the organization's management, the closer these two directions will be.

This proposal understands the need for contextualization and supporting the public accountant through political articulation. It also approaches the characteristics involving individual emotion and purpose that public accountants should deal with to systemically develop the subject, incorporating the SDGs in their planning. This initial framework can be implemented at strategic, tactical, or operational levels helping accountants to disclose efficiently and connecting the sustainable development outcomes of various organization departments.

The active teaching methodology is relevant to analyzing stakeholder engagement's role in sustainability reporting. For instance, developing the professionals' competencies to fulfil the Agenda is a matter of optimizing their qualifications and encouraging the adhesion to new values and purposes.

Still, in this context, public employees enjoy job stability, naturally making them more resistant to change. Thus, the difficulties in public administration will be equal to or more significant when developing new competencies aligned to a plan that, in Brazil, is often entailed by a political-partisan stereotype and lack of financial resources.

Nevertheless, SDGs competencies for reporting in public management are relevant when considering the severity of social, environmental, and economic problems. Furthermore, Brazil also receives even greater worldwide pressure for being the largest geographic area in the Amazon Forest region, with the most extraordinary biodiversity globally. The need for Brazilian accountants to acquire those competencies is vital to fair communication to society, especially regarding public budget expenses.

7. Conclusion

Developing competencies for SDGs reporting is still obscure and lacks prepositive frameworks (Brandão & Guimarães, 2001; Cella-De-Oliveira & Takahashi, 2014). The challenge of exploring how to deal with the subject within the context of an emergent economy and in public accountability makes it even more intriguing. For example, municipalities depend on federal budgets shaped by the pluriannual planning – a highly counterproductive method to allow management changes (Constanza *et al.*, 2016). Moreover, due to public agents' low awareness and motivations (Ragland, 2014), SDGs reporting is still considered useless (Allen *et al.*, 2016). On the other hand, the world, and the different public administration stakeholders, especially the Brazilian population, urge immediate solutions to the country's profound social, economic, and environmental wicked problems.

This work identified antecedent factors of accountants' competence for SDGs disclosure. The theoretical narrative showed that emotions and personal values should be embedded, refining traditional methods with a new dimension (purpose). Accountants' technical qualifications must be optimized for the social good by purpose.

In practice, we contribute by proposing an educational model to public accountants. The model can contribute to suppressing political barriers in public management, improving the socio-emotional competencies of the accountants, and aligning with the personal purpose of seeking sustainable management performance.

The limitations pertain primarily to the sample size employed in this study. While the Delphi method is renowned for its capacity to yield insights with relatively modest sample sizes, we undertook proactive measures to mitigate this constraint. Specifically, we adopted a strategy to enhance the sample's representativeness. This involved including participants from a diverse array of geographical locations across Brazil, encompassing experts hailing from all regions of the country.

With this work, we expose public management problems that are barriers to a better reporting and disclosure process from accountants. Also, we close the gap by offering a framework to suppress the barriers and support public management to educate accountants on this new and challenging task. In addition, a secondary contribution also improves public management's paths to mobilize their staff so that more significant, long-term, and less tangible objectives can be pursued with motivation, effectiveness, and efficiency.

Implementing the SDGs as the best way to disclose sustainability in corporate reporting is expected to be made feasible, making SDGs more tangible and adapting to organizational reality.

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