



Sustainable ESG: Operations in the Road Freight Transport

Vanessa Quadros, Edson Pinheiro,
Fernando José Avancini Schenatto and Alcenir Negri

EasyChair preprints are intended for rapid dissemination of research results and are integrated with the rest of EasyChair.

November 12, 2024

Sustainable ESG: Operations in the Road Freight Transport

Vanessa Feijó Quadros ¹[0000-0003-2880-0248], Edson Pinheiro de Lima ²[0000-0001-9331-1569],
Fernando J. A. Schenatto ¹[0000-0002-3717-2370], and Alcenir Vergilio Negri ¹[0000-0002-5331-8018]

¹ Universidade Tecnológica Federal do Paraná, Pato Branco Campus, Brazil

² Universidade Tecnológica Federal do Paraná, Curitiba Campus, Brazil
pinheiro@utfpr.edu.br

Abstract. The term ESG has been occupying a prominent role in corporate strategic plans, aiming to go beyond setting social-environmental goals, and increase the organization's efficiency, profitability gain, and market positioning. Thus, this article proposes applying a framework based on the approach of implementing practices related to environmental, social and governance issues (ESG) in a medium-sized road transport company. Therefore, the goal is to help companies transition to a more sustainable business model. The current article seeks to demonstrate the applicability of sustainable ESG operations through an interventionist approach, creating a model of ESG indicators – Environmental, Social, and Governance. The company's ESG materiality is identified to achieve this objective, allowing for evaluating actions and implementations in the organizational process. A qualitative action research (interventionist) method will be used to create the ESG indicators model, which seeks to solve organizational problems by applying ESG indicators in the company. A framework will be applied for modeling ESG materiality, granting a definition aligned with the company's strategic goals and developing its ESG models. That said, besides the academic contribution to the literature that abords the theme, this article corroborates the replication of an indicator framework to the transport sector scenario, specifically a freight carrier, in the three ESG dimensions: environmental, social, and governance. The present framework aims to identify the ESG materiality of a company under study and create indicators capable of contributing both management and decision-maker processes by obtaining materiality and deriving the ESG indicators. The data was collected in the field and the results obtained were validated in dialogue with the industry managers under analysis. In this sense, the thesis argues that, with the elaboration of the proposed study, improvement actions will be provided for the practice of ESG in the organization studied and companies in the freight transport sector.

Keywords: ESG – Environmental, Social and Governance, sustainability, materiality matrix; framework, transport industry.

1 Introduction

The sustainability theme is approached in a relevant way worldwide once it is already related to the impact on the planet, causing severe environmental problems. This way, the frequent agenda of governments from many countries has been the search for policies that promote awareness in society and organizations, both in terms of production and consumer behavior [1]. In this manner, the concern of good practices, in the last decades, has been put on the organizations' agenda at the local and global levels, moving from being an operational area to becoming a proactive area integrated into organizations' mission, objectives, and strategic actions. The evolution in the social and ecologic areas has stimulated organizations to reorganize their perspectives, with an outlook on the diversity of problems addressed by a project, looking for better solutions for aligning the three pillars of sustainability [2]. In addition, it aims to add value to the organization and to the people [3].

As a result, according to Pedron et al. [4], social responsibility and sustainability bring changes in the organization's dynamic, aligned with the transparent promotion of sustainable actions and practices. Therefore, sustainability and responsible use of natural resources is a constant concern; environmental issues are the problem of this century, leading companies to seek the reduction of risks arising from environmental, social, and governance issues [5].

As stated by Kabirhassan et al. [6], in view of this scenario, a business and social configuration focused on sustainability is sought, emerging ESG to reinforce Corporate Social Responsibility (CSR), listing environmental issues such as greenhouse gas emissions by companies, energy efficiency and social issues such as consumers rights, human rights, diversity and inclusion, workers' health and safety, fair remuneration; as well as governance issues including board meeting, committees, business ethic and fraud.

That said, ESG aligns with the concern for sustainability, aiming to mitigate global warming, pollution, and environmental deterioration. Thus, the ESG reports have been a relevant topic observed with attention and caution, prompted by the United Nations, when environmental and sustainability objectives were added to human rights in 2015 [7].

In the meantime, ESG reports allow the company to achieve a higher level of transparency, better access to capital, management, and evaluation of its risks, better reputation, and greater stakeholder loyalty [8, 9]. In this way, implementing sustainable practices allows companies to gain a competitive advantage in the sector in which they operate, increasing their productivity and reducing their exposure to risk once ESG principles are growing exponentially trend, warning investors, policymakers, and managers [10].

2 Theoretical Framework

2.1 ESG – Environmental, Social and Governance

In recent years, topics such as ESG have been explored by academics, companies, and leaders from many countries. Lots of different authors approach the topic and describe ESG performance as a holistic concept capable of evaluating the impact of an organization on the environment, society, and corporate governance practices. Its indicators go beyond traditional financial indicators, highlighting the responsibilities of companies, as well as their relationship with all those involved in the process, also to the community where the company operates [11-13].

According to Amin e Tauseef [14], the environmental dimension of ESG is directly connected to the impact of the natural environment caused by the company. On the other hand, the author states that carbon emissions, resource efficiency, and environmental laws influence financial performance.

From this perspective, companies that adopt sustainable practices, mitigating environmental risks tend to save costs with energy efficiency measures, avoid fines for law violations, and access new markets and customers [15, 16].

The ESG social dimension, in Mohammad and Wasiuzzaman's [17] vision, approaches how the company relates with its stakeholders, i.e., its employees, customers, suppliers, and local communities. This relation involves social activities, such as good labor practices, employee satisfaction, diversity and inclusion, customer satisfaction, and community involvement where the company is located. The author defends that social practices have the capacity to increase employee productivity, increase credibility and trust with customers, and facilitate relationships with suppliers.

Finally, on the ESG governance dimension, Rahi et al. [18] argue that the management structure, together with solid and determined governance through transparency and ethical practices, ensure accurate decision-making, therefore, attracting investors, and decreasing exposure to risk.

2.2 Materiality matrix

The Sustainable Accounting Standards Board (SASB) seeks to establish relevant sustainability topics to understand companies' ESG performance. It should be noted that not all factors are applicable to all sectors; for this reason, SASB identifies which are the most relevant, looking to contribute to ESG agenda's progress of the institutional investors. All five materiality matrix pillars and their factors are presented in Fig 1.



Fig. 1. Materiality table for ESG topics
 Source: Sustainable Accounting Standards Board (SASB)

In sequence, the transportation company’s materiality matrix was developed based on a detailed analysis of the interviews with the managers. Fig 2 shows the results.

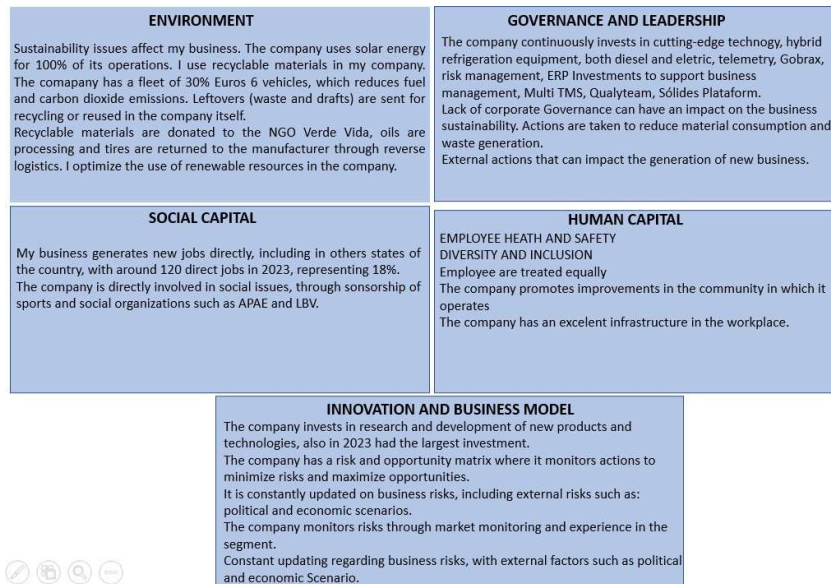


Fig. 2. Materiality table for ESG topics at the carrier under analysis

2.3 Framework

Framework is a term that refers to strategies and actions that aim to resolve one kind of issue. Therefore, that is one way the companies find to optimize its results through ready-made approaches.

And finally, the framework with a diagram indicating step-by-step of how the actions to implement the ESG into the Carrier will be made, the process approach used in the current study will be listed in the following steps:

- Identifying the processes, determining its order and the link between them;
- Establishing the process structure;
- Supervising the processes, monitoring the effectiveness and efficiency of the process;
- Process improvement; and
- Providing the necessary resources.

For that reason, to develop the framework, the five topics (environment, governance and leadership, social capital, human capital, and finally, innovation and business model) were broken down one by one into five steps (identifying the processes, establishing the process structure, supervising the process, improving the process, and providing the necessary resources). In order to provide the necessary actions to implement ESG at the Carrier, constructs were listed which are supported on the materiality matrix (Fig 1 and 2 elaborated with data extracted from the interviews conducted at the company in the analysis) as shown in Fig 3.



Fig. 3. Framework for implementing sustainable operations ESG – environmental, social, and governance operations

3 Methodology

The work was carried out at a medium-sized transportation company in the state of Santa Catarina. The present work consists of a case study that, according to Yin [19], is an empirical investigation of a contemporary phenomenon in its real-life context; the author emphasizes that documents, records in files, interviews, and direct observations evidence the case study.

The units of analysis consist of the participants, objects, events, or community of study, which depends on the research formulation and the scope of the study [20]. To carry out the qualitative stage, the research will involve the managers of the carrier under analysis, who will be interviewed with questions based on a validated questionnaire combined with questions drawn up through the findings in the materiality matrix constructed from data collected from the managers. For data collection, a survey instrument with closed items will be used, consisting of four parts:

- Part I – Personal occupational data;
- Part II – Mahler e Kearney [21] and Dalmoro [22] questionnaire;
- Part III – Questions collected in the materiality matrix

The first part of the questionnaire consists of questions that seek to identify the personal and occupational profile of respondents, including age, gender, marital status, educational level, time in the career, length of service with the organization, and position held.

In the second part of the interview it is intended to use the questionnaire on concern for sustainability, using the dimensions of the Triple Bottom Line suggested by Mahler and Kearney [21] and Dalmoro [22]. The questionnaire contains 15 statements about the economic, social, and environmental tripod, and finally, in the third part of the interview, will be raised some questions based on what was found in the construction of the materiality matrix carried out together with the managers.

4 Results and discussion

As a future perspective on topics in the Transportation Sector, there is a noticeable evolution in the discussion and, more than that, in the practices of ESG and innovation in companies in the sector, which is crucial for the development and growth of practically all sectors of the company.

4.1 Suggestions for improvement

It was noticed, in a field study (*in loco*), the concern of the board of directors and managers of the transportation company to meet the necessary criteria for sustainable management, as well as a large interest in applying and attend que ESG issues, the scenario is opportune because there are gaps to be filled by companies in the transport-

station sector in terms of ESG and innovation, and through joint research with the academic and scientific community, there is an extensive list of future studies to be carried out.

It is recommended to apply the developed framework and immediately the expansion of knowledge of those involved in the processes regarding the mapping of their area, it noted that the team of administrative assistants was unaware of the detailed content of the Process Map for the Driver Management area and that only the Supervisor of the area was aware of it.

5 Conclusion

With the increase in environmental and social pressure in the business world, it is becoming relevant for companies to look at these dimensions in their activities. As a result, there is a need for a system or method for implementing and managing sustainable development in business.

Therefore, the present research aimed to build a framework to demonstrate the applicability of sustainable ESG operations based on the approach of applying practices and issues related to environment, society, and governance in a medium-sized road freight transportation company, thus initiating the implementation of the sustainable development in the company under study. In addition, the study sought to contribute with companies whose goal is to transition to a more sustainable business model. After assessing the company's current situation, it was concluded that the materiality matrix drawn up together with the company's top management and managers was extremely important for creating a framework to be followed for implementing the ESG framework at the carrier.

Demonstrating the applicability of sustainable ESG operations is justified by the scenario that emerges once investors and policymakers have discussed and prioritized the need to boost businesses that prioritize ESG practices. From this perspective, given the importance of the transport sector and its direct impact on a country's economy and development, the relevance of implementing ESG in companies in the sector stands out.

Another highlight that became quite evident in this study was the importance of top management involvement with everyone involved in the process, emphasizing the need for continuous improvement and encouraging employees for changes actually to occur, combined with training and qualification, seeking to motivate employee, also their ability to identify constant improvements, improving their knowledge for solutions in their routine activities. It is also valuable to emphasize the significance of sharing experiences, recording, and documenting procedures, sharing results, and constantly reviewing ESG actions.

References

1. Stöckigt, G., Strube, R., Lubjuhn, S., Brand, M. Assessment of Consumer Attitudes Toward Sustainability in Food Logistics and the Role of Shopping Behavior and Personal Characteristics. In: Melkonyan, A., Krumme, K. (eds) *Innovative Logistics Services and Sustainable Lifestyles*. Springer, Cham, 87-104 (2019).
2. Aktas, C. B. Reflections on interdisciplinary sustainability research with undergraduate students. *International Journal of Sustainability in Higher Education*, 16(3), 354-366 (2015).
3. Matzembacher, D.E., Gonzales, R.L., Do Nascimento, L.F.M. From informing to practicing: Students' engagement through practice-based learning methodology and community services. *The International Journal of Management Education*, 17(2), 191-200 (2019).
4. Pedron, A.P.B., Macagnan, C.B., Simon, D.S., Vancin, D.F. Environmental disclosure effects on returns and market value. *Environment, Development and Sustainability*, 23(3) 4614–4633 (2021).
5. Mondal, C., Giri, B.C.; Biswas, S. Integrating corporate social responsibility in a closed- loop supply chain under government subsidy and used products collection strategies. *Flexible Services and Manufacturing Journal*, 34(1), 65-100 (2022).
6. Kabirhassan, M., Chiamonte, L., Dreassi, A., Paltrinieri, A., Piser, S. The crossroads of ESG and religious screening on firm risk. *Research in International Business and Finance*, 58(1):101500 (2021).
7. Godfrey, P., Merrill, C.B., Hansen, J. The relationship between corporate social responsibility and shareholder value: an empirical test of the risk management hypothesis. *Strategic Management Journal*, 30, 425-445 (2008).
8. Maaloul, U., Zéghal, D., Ben Amar, W., Mansour, S. The effect of environmental, social, and governance (ESG) performance and disclosure on cost of debt: the mediating effect of corporate reputation. *Corporate Reputation Review* 26(1), 1-18 (2023).
9. Samy El-Deeb, M., Ismail, T.H., El Banna, A.A. Does audit quality moderate the impact of environmental, social and governance disclosure on firm value? Further evidence from Egypt. *Journal of Humanities and Applied Social Sciences*, 5(4), 293-322 (2023).
10. Makridou, G., Doumpos; M.E., Lemonakis, C. Relationship between ESG and corporate financial performance in the energy sector: empirical evidence from European companies. *International Journal of Energy Sector Management*, 18(4), 873-895 (2023).
11. Bizoumi, T., Lazaridis, S., Stamou, N. Innovation in stock exchanges: Driving ESG disclosure and performance. *Journal of Applied Corporate Finance*, 31(2), 72-79 (2019).
12. Yunus, Y. A., Nanda, S. Exploring sustainable finance: A qualitative inquiry into responsible investment and ESG risk evaluation. *Golden Ratio of Finance Management*, 4(1), 01-13 (2024).
13. Zhou, G.; Liu, L.; Luo, S. Sustainable development, ESG performance and company market value: Mediating effect of financial performance. *Business Strategy and the Environment*, 31(7), 3371-3387 (2022).
14. Amin, N., Tauseef, S. Does an optimal ESG score exist? Evidence from China.

- Macroeconomics and Finance in Emerging Market Economies, 17, 1-19 (2022)
15. Chininga, E., Alhassan, A.L., Zeka, B. ESG ratings and corporate financial performance in South Africa. *Journal of Accounting in Emerging Economies*, 14(3), 692-713 (2024).
 16. Shakil, M.H., Mahmood, N., Tasnia, M., Munim, Z.H. Do Environmental, Social and Governance performance affect the financial performance of banks? A cross-country study of emerging market banks. *Management of Environmental Quality*, 30, 1331-1344 (2019).
 17. Mohammad, W.M.W., Wasiuzzaman, S. Environmental, Social and Governance (ESG) disclosure, competitive advantage and performance of firms in Malaysia. *Cleaner Environmental Systems*, 2, 100015 (2021).
 18. Rahi, A.F., Akter, R. and Johansson, J. Do sustainability practices influence financial performance? Evidence from the Nordic financial industry. *Accounting Research Journal*, 35(2), 292-314, 35(2), 292-314 (2022).
 19. Yin, R.K. *Case study research and applications: Design and methods*. 6th edn Sage, Thousand Oaks (2018).
 20. Sampieri, R.H., Collado, C.F., Lucio, P.B.; *Metodologia de la investigacion*. McGraw-Hill Interamericana, Ciudad de Mexico, 2018.
 21. Mahler, D., Kearney, A.T. The sustainable supply chain. *Supply Chain Management Review*, 11(8), 59-60 (2007).
 22. Dalmoro, M. A visão da sustentabilidade na atividade empreendedora: uma análise a partir de empresas incubadas. *Revista Gestão Organizacional*, 2(1), 87-104 (2009).