THE CONTRIBUTION OF THE MATERIALITY PROCESS TO A CLEAN PRODUCTION

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Abstract

After becoming the central element for sustainability performance measurements, such as in GRI, the study of materiality has become a trend in both the academic and business worlds. Tracking materiality helps to map the sustainable actions that are most relevant to companies and their stakeholders. This way, it is possible to optimize resources and remove unnecessary activities in business operations. The main objective of this work is to investigate how materiality can help make the manufacturing process more sustainable. This article was derived from a systematic review conducted in previous works. To point out trends, expert interviews were conducted. The aim was to provide support for the practical implementation of the theory. The results show that once the effects of your application can be viewed as an indicator (measuring and reporting effectively sustainable results), there is a strong tendency to apply materiality to productive processes, such as benchmarking (getting the best market practices), or even as a tool for performance optimization (improving the efficiency of the organization). Due to these factors, the topic covered here is essential for industry continuity.

Keywords: Materiality, Sustainability, Indicator, Optimization, Benchmarking

1 INTRODUCTION

Pressure from stakeholders is changing the way companies view sustainability. Their presence is observable in everything from strategic steps, such as the design and planning stages, to operations [1]. In practice, sustainability demands clean production, which influences all organizational flows and processes. The “clean movement” has triggered a virtuous sustainability cycle across entire supply chains. In order to stay in a supply chain, companies must comply with the minimum standards established by their industry (i.e., a cascading set of sustainable requirements made by the matrix that reaches all intermediary levels of operation) [2]. This cooperation, even when it’s mandatory, contributes to the dissemination of sustainable practices (e.g., the potential implementation of closed-loop production systems).

Sustainability indicators are used to track and highlight sustainable actions in order to aid in the communication between parties responsible for various actions [3]. In recent years, materiality has become a key element in sustainability indicator reports; thus, it is essential to study its variables and explore its potential contributions to a sustainable production [4,5]. Therefore, the purpose of this paper is to investigate how materiality contributes to a clean production.

2 METHODS

An extensive systematic review of literature was conducted by the authors in previous studies. Due to this, the results of the procedure showed a need to identify how materiality acts in practice, specifically in production management.

As the revision has returned few (ten) articles with the theme, it was necessary to explore the subject with other methods to construct the theory. The objective of this paper is to use of semi-structured interview with experts to describe the modes of contribution of materiality. The questions tried to understand how the materiality of the company is formed, the main trends, and mainly how it influences clean production. The study was conducted in a hydroelectric plant, located in Brazil. The department applied was sustainable purchases. Therefore, as limitation, it is recommended to extend research into other companies, sectors, countries and apply a larger number of interviews. Also, it is suggested applying statistical methods through surveys.

3 MATERIALITY

Although materiality is present in other disciplines, such as the financial and accounting fields, its application has another function in sustainability indicators—more precisely in GRI [2,6,7]. In short, materiality can be defined as the key element of the sustainability indicator, and it is the primary driver to guide all stages of the report [4,5,6].

Its operationalization is carried out by establishing priorities between the company and its stakeholders [3]. Each agent has different needs, and such criteria are implemented via a materiality matrix [2,5,7,8]. Figure 1 shows the mode of operation of the materiality matrix.

Figure 1. Base of the materiality matrix. Adapted of GRI [5].
The upper right quadrant presents the best combinations (i.e., what really needs to be reported, which then defines the process of materiality of the assessed company).

Due to the dynamism of the business world, the specification of materiality may change over time. The business’ strategy drives this aspect, facilitating the integration of materiality with the goals of the business [1,2,6,9]. The needs are presented in each report cycle, which allows each current round to entirely reflect the company’s goals.

4 MODES OF CONTRIBUTION

Defining, applying, and providing feedback regarding materiality results can contribute to an increase in clean production activities. This movement is reinforced by stakeholders’ strong appeal for sustainable processes, not only in relation to the environment but also regarding social and economic pillars [1,5]. Thus, expert interviews were conducted (classified as focal points) to identify the contributions of materiality to clean production. Due to the research stage of the field of materiality, its contributions have more significant in items 4.2 and 4.3.

4.1 Indicator

In business, materiality belongs to the process of defining key sustainability indicators. In defining its material aspects, a company clarifies what is really important— for that scenario—from the point of view of sustainability [2,5,6]. The company may conduct other actions, but it will only report the data classified as materials [5].

Since the filter is assigned only to those actions classified as material, the results will only show these actions [2]. With this limited but focused number of topics, companies can more easily extract data from applications. The major benefit of using materiality as a part of the decision-making process regarding sustainable indicators is to have a high degree of application customization, thus aligning its needs with its attributions [6].

Showing the company and its stakeholders the relevant data leads to more effective communication between the parties [5]. Synchronization ensures greater integration, publishing agility, and error minimization, as all process agents are participants in the strategic planning [1]. Such measures are established in periodic meetings (first while defining the company’s materiality and later in the development of the report) between focal points and stakeholders. It is crucial to adjust the entire procedure, because the relationship between the parties facilitates the execution of common objectives [3,6].

The production process becomes more efficient by publishing clear results measured according to specifically chosen indicators. Materiality, used as the key element of the report, enables the achievement of a high level of reliability for all parties involved.

4.2 Benchmarking

Benchmarking provides a starting point for companies that have never reported sustainable information. For example, GRI guidelines reflect the main issues explored by industry competitors, as these reports are easily found on institutional sites.

By reading the published reports it is possible to obtain relevant information for conducting one’s own measurement. The items are used to guide the strategic process, showing market data—as the business plan—, material aspects, limits, and procedures. It is crucial that new entrants into a market learn from the know-how of experienced (in terms of reporting) corporations.

The guidelines collaborate with the learning of companies that have never published sustainable performance reports. Topics work as a set of items demanded by sustainable demand. That is, the specification of the activities makes it possible to guide the new adherents.

From a material perspective, benchmarking allows a company to rely on its main market actions, which facilitates the decision-making process. In addition to making it possible to compare materials among competitors, researching the main aspects of materials used in the industry will also help create a sustainable plan for clean manufacturing.

4.3 Optimizer

The third way to employ materiality is to use it as a strategic tool for performance optimization. Materiality allows for the identification of opportunities in everyday scenarios, increasing a business’ performance as a result of improving its activities.

Due to the application of the indicator, it is possible to carry out the strategic mapping of the measured data and verify—and then question—the allocation of resources. The history of past results demonstrates the utility of the materials (i.e., by questioning whether the non-measured data are irrelevant to business continuity).

Since materiality is based on the principle of relevance and prioritization, the manager must analyze the non-reported information and see if it is really important to the business’ processes, flows, and products. The items not included in the perspective of materiality should be thoroughly analyzed, verified, improved, and, when necessary, excluded from the factory routine. Although material topics change from year to year as required by the company and its stakeholders, long-term follow-up of other variables (not classified as materiality) is advisable. The aim is to eliminate inefficient processes that do not add value to the whole system.

Production systems are increasingly demanding operational efficiency. Therefore, by being the object of resource prioritization, materiality can contribute to clean production. Furthermore, it is economically unthinkable to engage in activities that are not receptive to stakeholders.

5 CONCLUSION

Materiality has proved to be relevant for the field of clean production when used as a sustainable indicator (by revealing the significant topics to companies and their stakeholders), as benchmarking (providing the best sustainable practices in the market), and as an optimization tool (increasing process performance).

This study has contributed to the advancement of science by addressing the different facets of how materiality can influence a company’s sustainable environment. Since its methodological base—GRI—has been adopted by several companies around the world, including large multinational companies [10], it is important to carry out continuous studies to verify materiality’s influence and to understand how it promotes clean production.

Due to the exploratory potential of materiality, further research must be undertaken to explore intangible issues. For example, these might include inserting quantitative methods [3,8], testing an application plan (process approach), didactically improving implementation manuals [7,8], and conducting case studies. In addition, investigating how the materiality variable interacts with the new standard perspective (which is being implemented to replace the conventional guidelines) is recommended.
6 REFERENCES


