

Article

Environmental Sustainability for Strategic Planning Effectiveness and Organizational Improvement

Daniel Mandel Gandrita ^{1,*}, Ana Gandrita ², David Pascoal Rosado ^{1,3} and Manuel do Carmo ^{3,4}

¹ Universidade Europeia, Estrada da Correia, Quinta do Bom Nome, 53, 1500-210 Lisboa, Portugal

² ISCTE-IUL, Av. das Forças Armadas, 1649-026 Lisboa, Portugal

³ CINAMIL/Academia Militar, Av. Conde Castro Guimarães, 2720-113 Amadora, Portugal

⁴ CIMA/IIFA-University of Évora, Rua Romão Ramalho, 59, 7000-671 Évora, Portugal

* Correspondence: daniel.gandrita@gmail.com

Abstract: Organizations are continuously pushed to be more competitive, with a broader strategic planning framework that deals with sustainable dilemmas and creates new demands for inclusion. This study aims to investigate the relationship between environmental responsibility and workforce retention, as well as the role of environmental responsibility in strategic planning. The findings of this research will contribute to a greater understanding of how social responsibility can improve employee retention and lead to a more efficient and effective outcome. Using a quantitative method, we surveyed $n = 311$ respondents and conducted a bibliometric analysis using the Web of Science and ScienceDirect databases to gather relevant information on the topic. The findings of this study will provide insights into how social responsibility can improve employee retention and enhance organizational efficiency and effectiveness. The results address the value of implementing environmental guidelines in strategic planning, the contribution of top management, and pro-environmental policies with the intention to apply them, and encourage the sharing of knowledge and best practices.

Keywords: environmental sustainability; environmental responsibility; strategic planning; strategic planning effectiveness; workforce



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1. Introduction

Traditionally, strategic planning has been considered one of the sources of knowledge for organizations in the business sector [1–29]. This systematic method of making valid contributions to crucial decisions about the management of organizations' resources has suffered several changes over time [2].

According to [5–10], strategic planning is defined as a set of processes that can be undertaken to develop objectives and goals over a three-to-five-year period. Additionally, SP is used to align resources, energy, and activities towards a common goal in a thoughtful, disciplined, and systematic process of exploring and understanding emerging trends and desired futures [30].

The characteristics that define planning are considered by managers a guide to proactively and deliberately leverage their idiosyncratic combination of resources to create an advantage over their competitors [8]. As we move forward in time, the phenomenon of environmental sustainability has come to dominate conversations and has created new challenges to business models which has consequently brought a renewed vision to the planet, organizations, and society.

However, sustainability has found some resistance from a few managers that question its daily applicability in planning and to what extent may contribute to an organization's ability to create profit and continuously innovate [31–33] also calls attention to whether there is the possibility of “doing well by doing green”, which is constantly debated in the literature, but no consensus has been reached to date.

On this point, the possible challenges of environmental sustainability, which require managers need to understand the necessary changes to support goal achievement, generate doubt about the effectiveness of strategic planning for the company. Furthermore, [34] adds that when these adjustments occur, the organizational workforce enters into a phase of resilience, depletion, and regeneration, which are conceived of as interlinked processes, and following this, the spatial-temporal perspective, regarding what happens in planning, responding, and recovery, can be considered.

Considering this author's vision, we realized that there still exist some blurred lines in the debate about the commitment of environmental sustainability to strategic planning moving from an "either/or" to an integrative approach [35] and subsequently, the necessary changes to business management reach a greater level of effectiveness in achieving continuous improvement and mature evaluation [36].

As we move forward in time, we aim to understand the relationship between environmental responsibility and the workforce as well the role of environmental responsibility in strategic planning for more effectiveness and competitiveness.

The following paper is organized as follows. Section 2 presents the theoretical framework and the literature relevant to our research hypothesis. The research methodology is described in Section 3, in which we apply a bibliometric study, explaining all the steps used to acquire the necessary information. In Section 4, we present the collected data acquired through the quantitative method. The implications of our research findings are discussed in Section 5. The conclusion is presented by summarizing the contributions and limitations of this study in Section 6. Lastly, the study's limitations and avenues for future research can be found in Section 7.

2. Theoretical Framework and Research Hypotheses

2.1. A Sustainable Strategic Planning

Environmental sustainability has become part of global discussions in recent decades [37]. This phenomenon has been called to the attention of companies, which must start to pay more attention to the environmental impact of their corporate activity and accomplish sustainable development [25]. In this sense, as one of the key aspects of business operations, managers must put in place strategies for eco-value creation to become more sustainable [38].

As we move forward in time, it becomes necessary for organizations to commit and adopt actions targeting environmental protection and improvement while achieving economic performance [39]. Sustainability has also transformed itself into a management tool for organizational change, which can be influenced by managerial attitudes, board responsibility, stakeholder relationships, information systems, and employee responsibility [40].

Furthermore, this provides business models to focus their attention on the delivery of a "function" to their customers [41,42] by integrating services and products that can fulfill customers' needs. However, sustainable entrepreneurs are facing severe challenges as their businesses need to merge social, environmental, and commercial logistics, which sometimes diverge from their objectives, practices, and values, resulting in a lack of application of the strategic plan [43].

One of the most prominent challenges related to managerial sustainability is the retainment of workers. In organizations, there is a need for the retention of collective or individual human capital, which becomes a central concern because many valuable workers tend to leave [44], which results in several adjustments in overall strategic planning. Ref. [44] explains that some of the factors attached to employees leaving could be worthy of substantial financial incentives for staying, including the possibility of being in demand not just by the acquirer, and also the offer of greater incentives from other companies for key employees to leave.

Considering the reasons above, [45] goes further and states that strategic planning geared towards accomplishing the proposed initiatives and objectives must be outlined, providing opportunities to pursue environmental sustainability and contributing also to

the retainment of the new generation of workers. Some of these initiatives and objectives can be delineated as:

- Make partnerships with companies to provide information on carbon footprint implications and options for recycling;
- Work with several types of industries to focus on environmental product design that enhances the principles of sustainability (e.g., circular economy);
- Explore and seize opportunities to engage with organizations to support and promote environmentally sustainable digestive health care.

2.2. Overview of the Strategic Planning Process

Strategic planning has an extensive history that includes the unfolding of competing and multiple theories to explain strategic planning and its correlation with achieving management objectives [46–48]. This systematic process entails learners executing or accomplishing a task, considering what they need to encode and how to express that content [12].

According to some scholars [17,18,30,49] dimension planning is defined as an alignment of the energy, resources, and activities of an organization to work towards a common goal. This can be considered a significant contribution to the reduction in uncertainty, creating a higher level of transparency in circumstances that would otherwise be unknown [50].

Although we live in an era of more contemplation of the future, strategy research has increasingly become more vital to organizations, as a strong call for more decentralization and more tools, environmental awareness, and stakeholder awareness of the strategic planning process [26,48]. These developments concerning the participation, effectiveness, and inclusion of sustainability in strategic planning must be integrated into the core strategy of a firm by creating shared value, which hints at the creation of simultaneous benefits for society at large and all shareholders [51].

It is also necessary to mention that there are some limitations regarding the synergies and efficacy of the resources, increasing risk and uncertainty due to the constant changes in the business environment. These can be verified by the adjustments required for a strategic plan to result, which may frequently increase the inconsistencies in daily routines/activities, leading to lower coordination [12,52].

Refs. [16,53] also point out that the effectiveness of coworker training and education support ought not only to materialize in the classroom, but also has an impact after the planning has been put into practice. This statement on the direct effect of training support on social enterprises' execution goes alongside the proclamation made by [6,7]. In many small and young organizations, managers need to be multi-tasking, disregarding the time-consuming strategic planning process, even though supportive bodies have made training programs available to them.

Besides the training, the will of an organization to increase its efficiency needs to be aligned with structured strategic planning; in this sense, organizations need to look for knowledge or numerous ways to recombine their knowledge [38] and for managers have more constructive and quicker feedback, as well as to disengage from the need for extensive workloads [9].

Finally, a part of the effectiveness of strategic planning is attributed to the retention of people working in the organization. Ref. [27] stresses that it is much cheaper to maintain current employees than hire new ones. This assignment was directed to both the destination and the presentation of pro-environmental messages to top management and the workforce [54] to avoid a feeling of disconnection from people in day-to-day work. This could affect the lack of commitment to the proposed plans [55]. The four relevant prior studies and their findings are displayed in Table 1.

Table 1. Prior studies on strategic planning.

Author (Year)	Country	Main Findings
[52]	United States	Less effectiveness in strategic planning damages companies' performance, but influenced positively financial performance and operational capabilities.
[1–16,50,53]	United States	The materialization of training should be put in practice after the plan has been established, not only in the classroom.
[38]	France	Organizations need to look for knowledge or ways to recombine their knowledge.
[28,29,43,55]	United States	Disconnection from day-to-day work leads to a lack of commitment.

Source: Own elaboration.

2.3. Increasing Strategic Planning Effectivity

The literature on effectiveness often uses terms such as goals, purposes, aspects, aims, dimensions, factors, indicators, barriers, conditions, controls, issues, barriers, enablers, and components [56–58]. However, there is rarely a definition for them, and when they are defined, the concepts lack somewhat in consistency across the literature [4].

The terms above are constantly recognized and interpreted by managers as they move forward to achieve and establish an effective plan. In general terms, effectiveness is related to organizational strategy and the ability to generate sustainable growth in revenue in surrounding networks [19,59].

Although some organizations continue to address their operational needs solely, the strategic planning process needs to continue to be developed to become more effective; this can be achieved through the participation of management [60] in planning, which can generate effective, informational, and emotional effects [24]. The authors also add that it is vital that top management gather a number of teams of coworkers from several hierarchical levels and units to analyze past strategies and the organization environment to propose new goals, strategies, and how or what is necessary to achieve those purposes [14].

This contribution to the reinforcement of strategic planning and the practice of planning is also highlighted by researchers such as [10,61], regarding the use of strategic planning tools to enhance the effectiveness of planning itself, meaning that there is a possibility that workers could be more involved or have a higher participation in strategic planning and giving analytic feedback, resulting in a commitment to the organization [14].

This level of adherence is a sign of workers' participation, suggesting the existence of a greater involvement [62] influencing work performance and job satisfaction positively [63]. Through this path, it is possible to chart the future of the organization through debates and discussions on the future strategies and objectives of the company, generating more participation in strategic planning.

As organizations increase planning due to market uncertainty, the increase in effectiveness passes through the collection of information and analysis by the many functional areas inside the organization; this translates into two components attached to strategic planning, namely, greater attention paid to internal functional coverage and integration [64].

Based on the assumptions of our theoretical framework, the hypotheses that emerged from the literature were:

Hypotheses 1 (H1). Environmental guidelines can be implemented in strategic planning to increase workforce retention;

Hypotheses 2 (H2). *If the restructuring of strategic planning includes retainment environmental messages, pro-environmental and top management behavior contribute to one's intention to apply them;*

Hypotheses 3 (H3). *Companies that provide environmental sustainability education and training to their employees and encourage them to share their knowledge and best practices with their colleagues will have a more sustainable corporate culture and better environmental performance than those that do not.*

Based on the present literature review and the hypotheses formulated above, the proposed research model is presented in Figure 1.

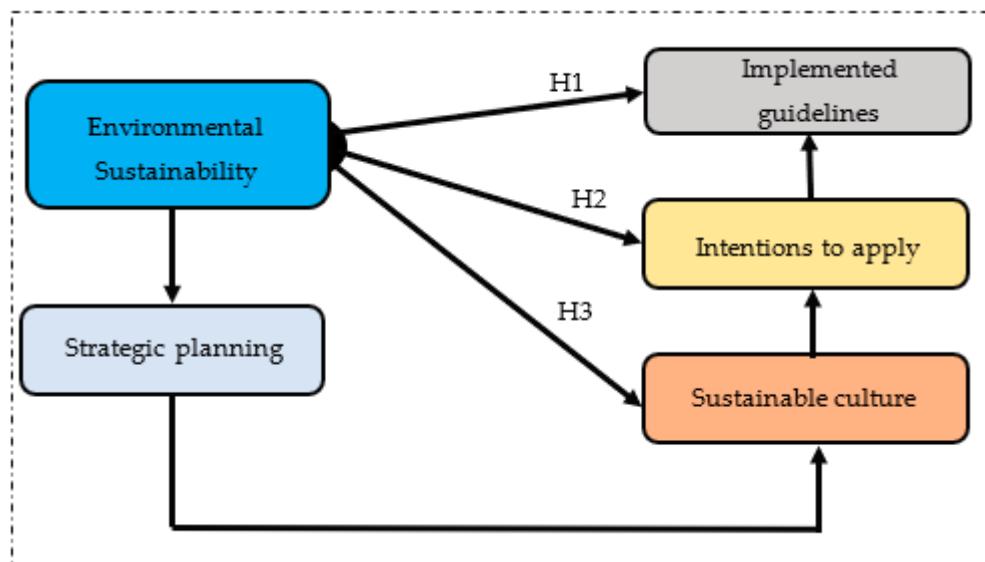


Figure 1. Conceptual framework of the study. Source: Own elaboration.

3. Methodology

3.1. Choice of Research Method

With recent global events, businesses have had to make changes following different worldwide stages. These situations cause the economy to fluctuate, creating challenges to prices, processes, services, and products, and for this reason, to the best of our knowledge, no prior studies on the effectiveness of strategic planning and the inclusion of a sustainable environment have gone sufficiently deep.

This research phenomenon involves a quantitative analysis of publications [13], making a contribution to the organizational structure that requires a PRISMA methodology, which can address questions that could not be answered by individual studies and identify problems in primary research that should be rectified in future studies [65]. A bibliometric analysis is used to understand the necessary steps for our literature review and to support our questionnaires.

In this regard, management studies commonly agree that are several methods to examine an under-researched topic, providing the necessary information to answer our research question:

- RQ1: How does environmental responsibility contribute to workforce retention?
- RQ2: Does the incorporation of environmental guidelines into strategic planning lead to increased workforce retention?

3.2. Research Method

To determine the contributions, trends, and challenges in the field of sustainability, strategic planning, and employee retention, Table 2 presents the following structure: to address the issues raised in this research and to identify relevant literature, a systematic literature review will be carried out using the PRISMA methodology (Table 2). The analysis of the results is based on five stages (problem definition, theoretical framework, bibliometric, content analysis, and the construction of the framework).

Table 2. Research steps.

Steps	Activities	Results
Step 1: Problem Definition	(i) Gap identification (ii) Formulation of the research	The relationship between environmental responsibility and workforce retention, as well as the role of environmental responsibility in strategic planning.
Step 2: Theoretical Framework	PRISMA methodology, according to the three main stages: (i) Identification: (a) Structuring the keyword from the thematic axes “Environmental sustainability”, “environmental responsibility”, “strategic planning”, “strategic planning effectiveness”, and “workforce”; (b) definition of the research protocol (search for the keywords, definition of the databases, publication type, publication year, document types, categories); (c) deletion of duplicated papers; (d) inclusion and exclusion papers; (ii) Screening: (a) Reading the title and abstract of papers to identify those that are not aligned with the purpose of the papers and should be excluded; (b) Read the full papers to exclude those that have in consideration the purpose of this research; (iii) Included: (a) Description of the final selection of papers.	The final selection of papers: 74 papers. These explicitly discuss the challenges and contributions related to the subject of study.
Step 3: Bibliometric Analysis	Using the keywords to start the search, compiling/refinement of the database; (ii) Development of tables for descriptive analysis; (iii) Exporting the database to excel and a RIS file to VOSviewer; (iv) Generating the VOSviewer clusters.	Characterization of the paper portfolio (evolution of publications, main journals, and main authors). Network analysis (full counting and authors).
Step 4: Content Analysis	Analysis of the main themes addressed in the research, (ii) Reading the information and mapping the themes related to the thematic, (iii) Discussion among the researchers about the data.	The thematic analysis gives 74 papers and their respective subgroups (verified in VOSviewer network), these being: environmental sustainability, business performance, strategy, management, and sustainable performance.
Step 5: Construction of the Framework	(i) Selection of the results from previous steps, allowing the production of insights by the research team; (ii) Mapping the information regarding the study.	The unification of the results in a theoretical framework to identify the strategic planning effectiveness in the organizations.

Source: Own elaboration.

The literature review starts with what sustainable strategic planning supports and its relation to employee retention, including an overview of SP and the contributions of scholars to that object of study, ultimately to increase the effectiveness of contributions to an organization. The content analysis will allow us to identify topics on the subject of study and understand the challenges that need to be addressed in a theoretical framework.

3.3. Data Gathering

To comprehend the trajectory of the collected data, we conduct a bibliometric study that will enable the identification of several items regarding citations, journals/authors, and keyword analysis. In the first stage of our literature research, we choose WOS (Web of Science) and ScienceDirect as the scientific databases that could allow us to gather the necessary information for our research, retaining a high level of relevance in publications. The selected articles were peer-reviewed and considered relevant in the field of SP.

The survey started by merging the search terms related to the keywords: “*Environmental sustainability*” OR “*environmental responsibility*” AND “*strategic planning*” AND “*strategic planning effectiveness*” AND “*workforce*”. The terms used were separated by the search axes, for which we use the Boolean index “AND” (to make the search

connections) and “OR” for the returns of alternative or synonyms terms in those same search axes.

This search in the databases was conducted in November 2022 and did not have any specific timeline. Table 3 presents the search terms, search protocol, database, document types, publication type, language, and search period.

Table 3. Research Protocol.

Search Term (Title, Abstract, or Keywords).	“Environmental Sustainability”, “Environmental Responsibility”, “Strategic Planning”; “Strategic Planning Effectiveness”, and “Workforce”
Search Strategy	“AND”; “OR”
Database	Web of Science and Science Direct
Publication Type	Reviewed Papers and Research Papers
Language	English
Date	1983–2022
Publication Titles	3916 results/16 Journals
Search Period	Not Specific

Source: Own elaboration.

The initial search gives us a total of 154,862 results. Refining our search by adding Management (M1) categories gave a total of 14,120 articles. The refinement by document types (articles), gives a total of 11,629 results. Selecting English as the primary language gives 11,277 results. While filtered by publication titles (Table 4), we obtained 3916 results.

Table 4. Distribution of bibliometric research throughout journals and articles.

No	Journal	Field	Total
1	Sustainability	M1	1990
2	Journal of Cleaner Production	M1	1151
3	Business Strategy and the Environment	M1	464
4	Organization Environment	M1	74
5	Journal of Environmental and Planning Management	M1	59
6	Journal of Business Research	M1	51
7	Journal of Management Studies	M1	9
8	Management Decision	M1	34
9	California Management Review	M1	16
10	Sage Open	M1	20
11	Polish Journal of Environmental Studies	M1	28
12	Business Society and Review	M1	10
13	Long Range Planning	M1	14
14	Business Strategy and Development	M1	14
15	Global Business Review	M1	15
16	PLOS ONE	M1	10
			3916 Results

Source: Own elaboration. Note: The field in which our research finds itself was designated as M1 (Management).

The second stage in PRISMA methodology is screening; this included selecting the papers by reading all the abstracts and titles and verifying their relation to our study. In this process, we confirmed that the information, keywords, and terms were related to our study. After the selection was made, we reached a final selection (Figure 2) of 74 papers.

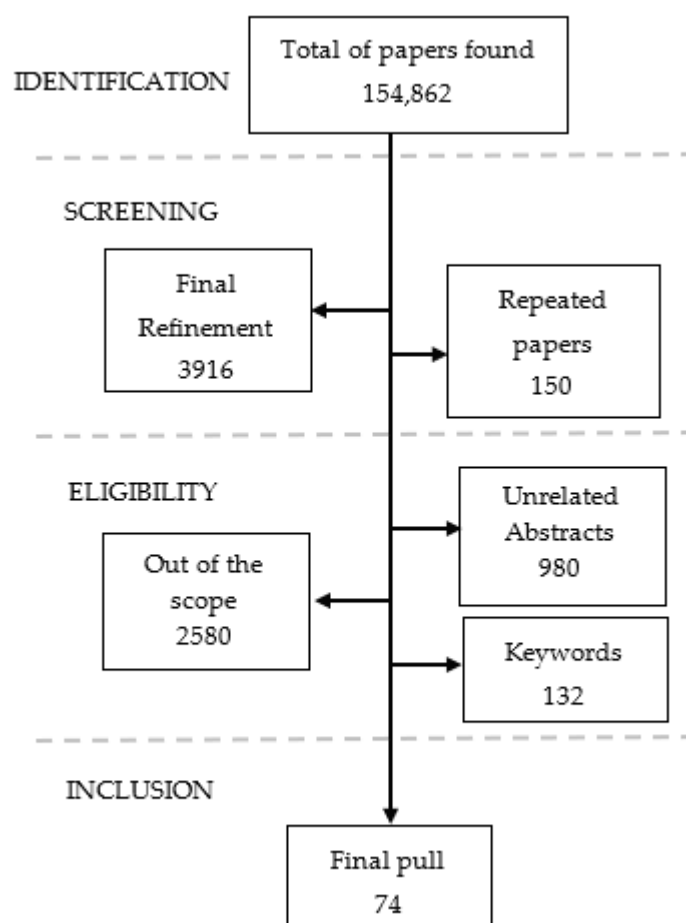


Figure 2. Methodology phases. Source: Own elaboration.

Regarding the selection format, the papers encountered were found using a snowball method. Therefore, the studies and authors contribute continuously to the discussion and the development of SP efficiency. Moving forward in our search to answer the central question, it was possible to catalog the papers on aspects related to SP, DC, and efficiency improvement. These papers were eligible for bibliometric analysis, content analysis, and framework [66].

3.4. Inclusion Data and Exclusion Criteria

For this research, peer-reviewed journals were considered as a main source of knowledge. Our focus of inclusion was to select keywords and search databases, keeping out theses, white papers, book chapters, and blogs.

Considering the exclusion criteria, we rejected several articles that did not present any contribution directly, or had a practical application or theoretical information that did not comply with our research; in that sense, we ruled out:

- Ex1 Articles focused on blockchain programming;
- Ex2 Articles with specific relation to technological areas;
- Ex3 Articles focused on medical research;
- Ex4 Articles with a specific relation to business implementation.

3.5. Co-Occurrence of Keywords

To analyze the keywords, we performed full and fractional counting with the final pull of papers (74). The construction of this analysis was made using VOSviewer software (Version 1.6.17) to understand network strength, clusters, and links.

In Figure 3, to structure our bibliometric network we made a full counting in which we could find four clusters (blue, yellow, red, and green), a total link strength of 198, and 18 items. We also could verify in this simulation that the links with higher strength were in relation to performance, environmental sustainability, management, and innovation.

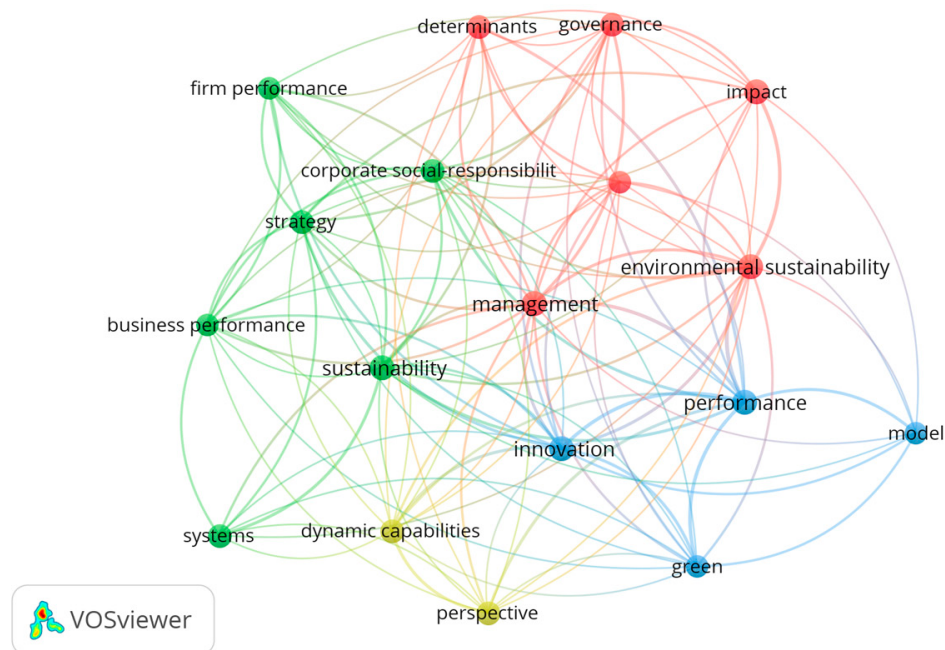


Figure 3. Full Counting Keywords. Source: VOSviewer software (Version 1.6.17).

4. Data Description

4.1. Design

To conduct our research, we employed a quantitative method. We start our survey with a broad brief introduction to the study. Participants were advised to respond in an honest and sincere manner, having in mind that there were no right or wrong answers and that the confidentiality of the questionnaire was guaranteed. To create this questionnaire, we used Google Forms. The link was shared on several social networks, such as LinkedIn, Facebook, WhatsApp, and via email between October 2022 to January 2023.

The survey consisted of two parts. The first comprised demographic features, including age, gender, academic position, and country. The second part of our study included the measurement of three constructs, namely IG (implemented guidelines), IA (intention to apply), and SCC (sustainable corporate culture). To facilitate the score interpretation, the present study uses a Likert-scale survey [67] to validate the questions presented with a five-point response scale (1—totally disagree; 2—disagree; 3—neither agree nor disagree; 4—agree; 5—totally agree).

4.2. Sample Characterization

Of the total respondents, 311 (Table 5) valid answers were obtained to the questionnaire, of which 44.7% were female, 53.7% were male, and 1.6% *Other. The survey was applied to those over 18 and in the labor force (employees). The modal age class was 18–25 years old (53.4%) and the second most frequent was 26 to 35 years old (31.2%).

Table 5. Sociodemographic data.

Characteristic	Classification	Total Sample (n = 311)	Percentage %
Gender	Female	139	44.7
	Male	167	53.7
	* Other	5	1.6
Age	18–25	166	53.4
	26–35	97	31.2
	36–45	22	7.1
	46–55	18	5.8
	56–65	5	1.6
	Over 65	3	0.9
Academic Qualifications	Basic	6	1.8
	Middle School	130	41.8
	Bachelor's degree	119	38.2
	Master's degree	51	16.4
	Ph.D.	6	1.8
Country	Portugal	73	23.5
	Poland	78	25.1
	Italy	45	14.5
	Other	115	36.9
Employed rate	Employed	311	100

Source: Own elaboration. * Other. The survey was applied to those over 18 and in the labor force (employees).

Concerning academic qualifications, the sample was 1.8% basic education, middle school 41.8%, bachelor's degree 38.2%, master's degree 16.4%, and Ph.D. 1.8%. Regarding the geographical location (nationality), the target population is in the European Union. However, it was possible to understand that the largest groups are in Portugal and Poland, with 25.1 and 23.5%, respectively, and Italy with 14.4% is the third best represented country. With smaller percentages, we could also count countries such as Spain, Sweden, the United Kingdom, Chile, Hungary, Greece, Germany, France, Finland, Estonia, the Czech Republic, Ireland, Turkey, and Chile.

4.3. Data Analysis Procedure

The scales were adapted to English and translated into Portuguese, which was carried out by two persons with an extended experience in strategic planning and sustainability matters. Thereafter, the questionnaire was sent to 15 managers with different roles in their respective organizations to evaluate their level of comprehension of each item. Considering the sample size (n = 311), the study proceeded to assess/test, measure, and validate the variables/constructs under study in order. Using the SPSS IBM statistics (version 28.0) software, we used two-step procedure [15] and two multivariate data analysis techniques: a principal components analysis (PCA) followed by a multiple linear regression analysis.

We started by assessing the internal consistency of the answers, through Cronbach's alpha, followed by the application of the PCA, and then we validated the appropriateness of using the technique, through Kaiser–Meyer–Olkin (KMO) and Bartlett's sphericity tests.

In doing so, the measurement model assesses the validity and reliability of the used sample. Considering this information, we can verify, through the KMO and Bartlett's tests, the adequacy of the technique used (PCA). Second, the structure models were managed to measure the relationship between the variables and to test our hypothesis.

5. Results

In this section we present the main results in order to better clarify them to the reader. The factors obtained by the application of the PCA are presented in Table 6, which validates, in general, the theoretical model adopted. It can be concluded that the retained factor (obtained by the PCA method followed by Varimax rotation) has high factor weights for all items, except coworker availability, which is more significant than 0.40 [3,68] and explains 58,182 percent of the total variance (which is considered satisfactory by [69]). Therefore, the eigenvalues of the first three major components (PCA) have explained variances of 37,985, 10,796, and 9401 percent, respectively.

Table 6. Factors and items.

Factors and Items	Loadings by Factor	Total Variance Explained (%)	Cronbach's Alpha by Factor
F1-Green restructuring		37,985	0.765
Environmental leadership	0.737		
Inclusion and intention	0.753		
Messaging impact	0.700		
Behavior	0.670		
F2-Guidelines implementation		10,796	0.769
Employee impact	0.672		
Environmental incorporation	0.679		
Motivation	0.731		
Messaging and retention	0.739		
F3-Sustainable education training		9401	0.692
Training	0.725		
Knowledge and sustainability impact	0.751		
Education	0.770		
Coworker availability	0.333		
KMO		0.868	
Bartlett's test of sphericity		$\chi^2(66) = 1,119,137$; Sig. < 0.001	
Cronbach's alpha total		0.849	

Source: Own elaboration. Legend: H1A (employee impact); H1B (environmental incorporation); H1C (motivation); H2A (messaging and retention); H2B (environmental leadership); H2C (inclusion and intention); H2D (messaging impact); H2E (behavior); H3A (training); H3B (knowledge and sustainability impact); H3C (education); H3D (coworker availability).

The values of KMO (0.868) and Bartlett (1,119,137, Sig = 0.001 < 0.05), statistically showing that the retained factor is appropriate to describe the correlation structure between the items, is also corroborated by Cronbach's alpha (0.849) [23] state "middling: values in the 1970s").

As previously mentioned, we used a Likert scale in the construction of the questionnaire. Qualitative variables were generated; we had to carry out a change in the measurement scale, so as to be able to apply a multiple linear regression (MLR), which was more robust and fulfilled the main application assumptions. For the scale measurement change, $ratio = \frac{scale\ value - 1}{4} * 100$ was used, as suggested in [29] (p. 33).

In order to answer H1, we used an MLR, from which we present the main results in Table 7 below. It should be noted that the model obtained satisfies the main validation assumptions: the random variable of the errors has normal distribution with null mean value, homoscedasticity (change statistics), and no autocorrelation (Durbin–Watson

test); the errors are random and independent ($\text{cov}(e_i, e_j) = 0, i \neq j$) and there is no perfect multicollinearity (collinearity statistics). The collinearity statistics (by VIF—Variance Inflation Factor) show both values are lower than five [70], which shows the non-existence of multicollinearity problems for the independent variables.

Table 7. Results of the Multiple Linear Regression.

Model		Unstandardized Coefficients		t	Sig.	Collinearity Statistics		Durbin-Watson	Adjusted R Square	Change Statistics		
		B	Std. Error			Tolerance	VIF			F Change	df1	df2
Dependent Variable	(Constant)	0.411	0.130	3.155	<0.001							
H1B	H1A	0.259	0.053	4.913	<0.001	0.879	1.137	1.952	0.361	88,391	2	308
	H1C	0.447	0.045	9.879	<0.001	0.879	1.137					

Source: Own elaboration.

By graphical analysis and, in particular, by the application of the *Durbin–Watson* test, we verify the null autocorrelation of the residuals. The acceptance region, obtained with the support of the table for the referred test, is given by $[d_u; 4 - d_u] = [1.73; 2.28]$, considering that the test value (1.952) belongs to the obtained interval.

In relation to the model (obtained by the least squares method), we can verify that 36.1% of the total variations are explained by the regressors used, which can be considered reasonable given its context. The equation of the model is $H1B = 0.411 + 0.259 \times H1A + 0.447 \times H1C$ and the regressors are statistically significant (constant, $t_{(308)} = 3.155$, Sig. < 0.001; H1A, $t_{(308)} = 4.913$, Sig. < 0.001 and H1C, $t_{(308)} = 9.879$, Sig. < 0.001, where $t_{(n-k)}$ are pivot statistics with *t*-Student distribution with $n - 3$ degrees of freedom); the marginal contributions are positive, and the contribution of H1C is slightly more than twice that of H1A. Overall the model is statistically significant.

Concerning the second hypothesis, we obtained a matrix of Spearman's correlations (a non-parametric coefficient is indicated for the type of scale measure used) which is shown in Table 8, under the hypotheses: H_0 : *H2X is independent of H2Y* versus H_a : *H2X is dependent of H2Y*. From the table we can deduce that all correlations are positive, low, but statistically significant—that is, in all the situations considered, we reject H_0 .

Table 8. Results of the Spearman's *rho*.

Spearman's <i>rho</i>	H2A	H2B	H2C	H2D	H2E
H2A	1	0.261 **	0.360 **	0.308 **	0.291 **
H2B		1	0.449 **	0.374 **	0.459 **
H2C			1	0.467 **	0.339 **
H2D				1	0.465 **
H2E					1
n	311	311	311	311	311

Source: own elaboration. **. Correlation is significant at the 0.01 level (two-tailed). All the values of the *rho* are statistically significant at the 5% level.

In the next section, we interpret/connect these results to the study.

6. Research Findings

To test the first hypothesis (H_1), we used a linear regression assessing the model with the following measures: path coefficients (β), significance (*p*-value), R^2 , the effect size (f^2), and an interpretation of the variables. For the second hypothesis (H_2) Spearman's correlation was performed to understand and measure the degree of variables. The third hypothesis (H_3) was submitted to an independent-sample *t*-test (a non-parametric test).

H1. *Environmental guidelines can be implemented in strategic planning to increase workforce retention.*

The obtained results allow us to observe the final model and arrive at some conclusions regarding this study. To test this hypothesis, we used a linear regression, which allows us to see that the implementation of environmental guidelines in the organization strategic planning was significant ($\beta = 0.447$; $t = 9.879$, $p < 0.001$). Additionally, it was possible to understand that the effect on implementing those guidelines into strategic planning led to a safer environment, helping employee motivation. The R^2 presents a value regarding the predictor's SAT score, showing that adding messages into strategic planning accounts for 0.365 employee motivation and retention in the workplace. A Wilcoxon signed rank test with effect size values (-0.196 and -0.2686) demonstrated that the strength between variables is below moderate. Regarding the remaining effects of our hypothesis, it was noticeable that the youngest generations (Sig. = 0.416) believe that this level of environmental inclusion in strategic planning changes the workforce view and how they behave in the organization (Sig. = 0.978).

H2. *If the restructuring of strategic planning includes retainment environmental messages, pro-environmental and top management behavior contributes to its intention to apply it.*

For this hypothesis, Spearman's correlation is used to understand each variable related to it. With that in mind, we could acknowledge that if the incorporation of friendly environmental messages into planning becomes necessary to help the creation of a map that guides top management and its intentions to put those same plans into action. This can be achieved by constant pro-environmental behavior, which could subsequently be influenced strategically, resulting in the success of future operations. However, the inclusion of any environmental changes in strategic planning has a strong effect on any top management decisions and the changes to the organization; as a result, variables such as commitment to sustainable practices could be uncertain and the impact on workforce retention could be higher. Lastly, the alignment between both top management and pro-environmental plans is a factor that can reinforce strategic changes, developing the intention to apply sustainable practices in the organization.

H3. *Companies that provide environmental sustainability education and training to their employees, and encourage them to share their knowledge and best practices with their colleagues, will have a more sustainable corporate culture and better environmental performance than those that do not.*

As the assumption of homogeneity of variances was not substantiated, an independent t -test with a Welch correction was used. The higher results suggest that providing a sustainable environment culture of education and training for employees has an effect on the overall company culture ($Z = 0.475$; $df = 130$; Sig. = 0.963). Top management, supervisors, and managers especially need to encourage employees to share their knowledge and environmental best practices to integrate the organization, first, for increasing teamwork, and second to improve performance ($Z = 0.332$; $df = 130$; Sig. = 0.566; $t = 0.517$). Additionally, if there is a greater unification of the workforce regarding the organization's goals, the disposition to work with top management will be greater ($Z = 0.873$; $df = 130$; Sig. = 0.492; $t = 0.517$), and the same for other management areas. These results have a 95% confidence interval.

7. Discussion and Conclusions

Our qualitative research fills the gap in organizational insights on strategic planning, employee retention, and a sustainable environment. The focus of our goals was to understand (1) the relationship between environmental responsibility and workforce retention and (2) the role of environmental responsibility in strategic planning. While decoding our results, we discovered that our first hypothesis was not confirmed. Strategic planning is defined as the alignment of the energy, resources, and activities of an organization to work towards a common goal [18,30,49]. To some organizations, the simple application of strategic planning still can be a hard task, translating into severe long-term challenges for sustainable entrepreneurs and as a result more difficulty in retaining a workforce. During

our hypothesis test, it became clear that the implementation of environmental guidelines can be a valuable asset for the future of the organization, but there is also the necessity for a higher effort from managers to make that information more appealing and attractive to employees, creating a favorable attitude towards the company.

Secondly, the results also suggested that is necessary for top management and pro-environmental entities to work diligently on how environmental messages (their presentation and what managers want to communicate) can be transmitted to employees and what their behavior can be while learning them. Having a positive effect will lead to a higher rate of application from all members involved, and this will lead, as mentioned in our theoretical framework, to better use of the strategic planning mechanisms (Table 2), reinforcing present and future strategies.

Regarding the third hypothesis, companies constantly working on their stakeholders' education/training and encouraging them to share knowledge aligns with Refs. [19,50] theory that employees should materialize their knowledge in the classroom alone. Participants of younger ages looking for another corporate culture and environment will apply for a job and the retainment of that same job at a higher rate. Compared to those that do not perform in the same manner, the results present a greater unification, teamwork, and more ability to put strategic planning into practice.

In conclusion, our results suggest that the implementation of environmental guidelines for strategic planning contributes to the retainment of employees. This is believed that higher commitment from the organization, better motivation to stay, and pro-environmental and top management behavior will contribute to one's intention to apply it. It was noticeable that providing environmental education/training and encouraging employees to share knowledge and best practices leads to a better environmental corporate culture and performance. This leads us to reflect on the corporation's behavior regarding their efforts to increase sustainability in their daily operations or long-term strategic planning, in practice, the time spent will always be a huge factor to consider and any action towards that kind of activity will take resources and severe changes in employee habits.

8. Theoretical and Practical Implications

This study contributes to the integration of a more sustainable environment inside organizations, the integration of strategic planning in the equation, and better solutions for the retention of the workforce with the inclusion of top management and pro-environmental behavior. Additionally, our population, being European, will allow future investigations into this phenomenon. In addition, our results reinforce the theory about the relationship between strategic planning and environmental sustainability.

At present, talent retention is considered the organizational goal of keeping the most productive talent and workers; this reduces significantly the cost and effort for an organization and could be improved if managers could consistently add to their strategic planning, creating future opportunities for those employed and new applicants. This initiative helps the organization to stand out from other companies as a reference in the market. Additionally, adding sustainable initiatives creates a positive image for several stakeholders, especially those in the new generation, which is more demanding. For this reason, this study tries to assess the importance of the environmental role in strategic planning and highlight the relation between sustainability and the constant necessity of training and education in sustainability to increase and improve employee retention.

Thus, for management specialists, this research adds credibility to the sustainability issue, which is a growing topic of concern all over the world when comes to creating new strategies and new ways to improve organizational practices. Strategic planning is reborn by becoming involved with other areas and adapting them to new contexts.

9. Limitations and Future Research

This study contributes to solidifying our knowledge regarding the research areas, and certain limitations were considered. First, although the questionnaire was sent to top

management promptly, due to their schedule and lack of time, sometimes the responses took more time than needed. In our sample, we verified that *Other (gender) was a small percentage (1.6%) of the total (five persons). They belong to the newer generation and there is great importance to knowing what their opinions regarding retention are, what their knowledge of planning is, and how sustainability can support their future endeavors.

Regarding future research, it could be interesting to transform this research into an experimental design to determine the cause and effect of sustainable education and training for millennials vs. generation X. With this research, we aimed to understand their retention needs and to what extent organizations have to change their guidelines and create new patterns to maintain their competitiveness and still develop employee mindset.

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Abbreviations

ES	environmental sustainability
ER	environmental responsibility
PRISMA	preferred reporting items for systematic reviews and meta-analyses
SP	strategic planning
SC	sustainable culture
BA	bibliometric analysis

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