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Mapping Circular Economy in Portuguese SMEs

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Abstract: The transition from a linear to a circular economy is an increasingly popular solution to the dual problems of scarcity of virgin resources at the point of extraction and the exponential growth of waste at the point of disposal. The linear economy adheres to a model wherein natural resources are extracted, transformed into products, utilized, and ultimately discarded as waste. In contrast, the circular economy is designed to promote sustainability. This is achieved by reducing the use of raw materials, waste, reuse, recycling, and recovery of materials at the end of the useful life of products. The result is a closed and regenerative cycle that preserves natural resources and minimizes environmental impacts. The manner in which each country and company responds to this reality is markedly disparate. This research endeavors to ascertain the strategies employed by Portuguese SMEs in addressing this challenge. A review of the literature was conducted to ascertain what has been published on this subject. However, the results of this review indicate that the existing literature does not fully address the intended topic. The articles identified in the literature review only partially address this issue, focus on other geographical regions, or in some cases, are dedicated to specific business sectors. In light of the dearth of research on this topic, we turned to the Portuguese context, employing the Grounded Theory methodology to conduct semi-structured interviews with 34 SMEs. Upon analysis of the results, it became evident that the circular economy is not yet a prerequisite for consumer choice. Portuguese legislation does not facilitate the implementation of the circular economy, consumers are not yet engaged with the issue itself, companies face challenges in communicating their practices, and there is a perceived lack of credibility by consumers. Additionally, the cost–benefit ratio is not always favorable for such practices.

Keywords: SMEs; circular economy; Portugal; semi-structured interview; consumer; consumer behavior

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1. Introduction

The scarcity and environmental impact of the extraction of virgin resources have been increasing, becoming a prominent topic of discussion in society, both in political discourse and in the broader economic context. Similarly, the issues associated with the waste generated by consumerism and its environmental impact have been increasing exponentially.

The global model that has gained the widest acceptance is based on the linear economy, which is predicated on the "extract, produce, use, and dispose" paradigm. This model entails the transformation of virgin natural resources into products that ultimately reach the end of their useful life as waste, resulting in their disposal at the conclusion of their lifespan.

The discourse on the necessity of transitioning from a linear to a circular economic model is gaining increasing traction in both political discourse and academic research [1]. The transition from the linear economy to the circular economy (CE) is increasingly being proposed as a solution to address the dual challenges of resource scarcity and the exponential growth of waste.

The CE model is designed to advance sustainability and address the challenges inherent in the linear economy. It aims to reduce the reliance on virgin raw materials, minimize

waste generated during manufacturing, and promote the reuse, recycling, and recovery of materials at the end of a product's useful life. In this manner, a closed and regenerative cycle is established, whereby natural resources are preserved, the concept of waste or residue is negated, and environmental impacts are consequently minimized.

The manner in which countries and companies operationalize this concept varies. It is crucial to comprehend the most expedient, optimal, and efficacious approach to implementing CE, as well as the current status of its implementation. The efficacy of free markets is being called into question, and the conventional wisdom that has accompanied economic development and sustainability for so long is no longer seen as a "there is no alternative" approach [2].

Eurostat data indicate that Portugal is one of the European Union member states with the lowest rate of achievement with regard to the objectives and targets of the CE. In 2022, the country achieved a rate of only 2.6%, compared to the EU average of 11.5% [3]. As a preliminary step, publications on this subject were examined, with a particular focus on the Portuguese market and the small- and medium-sized enterprises (SMEs) that represent approximately 99% of its business landscape.

As a preliminary step, an analysis was conducted of publications on this subject, with a particular focus on the Portuguese market and the role of small- and medium-sized enterprises (SMEs), which represent approximately 99% of the business landscape [4]. The SME category is comprised of companies that employ fewer than 250 individuals and whose annual turnover or balance sheet total does not exceed the specified thresholds of EUR 50 million or EUR 43 million, respectively. A search was conducted on the Scopus database, which, according to the authors [5], is the most widely used online bibliographic database for the period between 1972 and 2023. The search criteria were designed to identify articles on the subject of CE and on SMEs. The terms "Circular Economy," "SME", and "Portugal" were used in conjunction with the filters "open access" and "article". The research yielded two articles: one on the agri-food sector [6] and the other on entrepreneurship [7].

As the desired topic could not be located, a free search was conducted on the subject in question, combining the terms "circular economy" and "small and medium-sized enterprises". The majority of these articles adopt a business-oriented perspective, with only a few instances that bridge the gap to the consumer. In this regard, the authors [8] merit particular attention. It is noteworthy that the majority of the articles address the issue of SMEs, with a particular focus on Portuguese SMEs. This is evident in the work of authors such as [1,9,10], who examine the specific characteristics and challenges faced by Portuguese SMEs within the broader context of the European Union. However, there is a lack of specificity in the market analysis, with the focus being on SMEs in the EU as a whole. The methods employed for the extraction and analysis of information predominantly comprise surveys, followed by case studies, systematic literature reviews, and, in a minority of cases, semi-structured interviews. In the remaining instances, a combination of more than one of the aforementioned methodologies is utilized. It is noteworthy that some authors present a general overview of the barriers and facilitators to implementing the circular economy [11]. In this research, the systematic literature review methodology is not applicable due to the limited number of articles, and the use of surveys is also excluded due to the lack of information available on the specific market that is intended to be addressed. Furthermore, the case study does not appear to represent a comprehensive representation of the global reality. Consequently, the methodology that seems most appropriate is the use of semi-structured interviews, as employed by the authors [12,13].

Nevertheless, the findings on small- and medium-sized enterprises (SMEs) and the circular economy (CE) in these articles provide insight into the orientation of this research. As posited by the authors of [12], who conducted interviews with a sample of 15 SMEs, a larger sample size would facilitate the collection of more data and allow for greater generalization of the evidence. This analysis demonstrates that no research has been conducted to characterize the implementation of the CE in Portuguese SMEs, which justifies the research presented here. The authors of [13] report that the semi-structured interviews

were conducted in person and lasted 40 min on average. To facilitate data collection, they integrated a visit to the facilities where the interviews were conducted. This approach allowed them to gain deeper insights into the subjects' perspectives. As posited by the authors of [14], the location and sector of activity exert an influence on the efficacy of CE implementation in SMEs. Additionally, the role that the interviewees occupy within the organizational structure yields intriguing and diverse insights pertaining to the CE. As asserted by the authors of [15], there is a prevalent aspiration among SMEs to engage in CE activities, particularly as a means of attaining financial efficiency. However, this aspiration is occasionally constrained by the rising costs associated with the CE. As posited by the authors of [9], the number of employees in environmentally focused roles and the prevalence of companies requiring personnel with environmental expertise play a pivotal role in the adoption of the CE. The same authors also found that older and larger companies with higher annual turnover were more likely to implement CE actions. As posited by the authors of [16], national scientific knowledge related to the environment serves to reinforce implementation of and investment in the CE by SMEs.

It is evident that there is a paucity of information regarding the manner in which SMEs in Portugal implement and navigate the transition from the linear economy to the CE. Moreover, the subject has been relatively understudied, making it a worthwhile endeavor to gain insight into the current state of circularity implementation within Portuguese SMEs. Accordingly, in order to gain insight into the subject matter, it was necessary to conduct field research. This entailed the use of semi-structured interviews with a representative sample of Portuguese SMEs. The Grounded Theory approach was employed in conjunction with the aforementioned methodology to assist in the construction of the semi-structured interview script. Subsequently, the interview script and the rules for its construction were tested.

Once the sample of companies had been selected and the data had been collected using the methodology presented, a quantitative and qualitative analysis of the data was conducted.

2. Research Methodology

This research is exploratory in nature and aimed to assess the degree of implementation of the CE in Portuguese SMEs, identifying barriers and facilitators to its development. The subject is one that is not yet sufficiently defined and for which there is a lack of validated theories capable of explaining its evolution. Furthermore, the subjectivity of entrepreneurs' understandings and positions on the matter must be considered. In light of these circumstances, it is particularly worthwhile to opt for a qualitative methodology which is capable of properly exploring emerging phenomena [17]. Qualitative research is particularly well suited to the study of processes, as opposed to the end-product. It allows researchers to embark on new avenues of enquiry and to focus on the inductive generation of theories grounded in the data [18].

This research is based, in particular, on the principles of Grounded Theory [19], which is focused on understanding the perceptions of a target population and developing hypotheses to guide further research. It is employed to investigate situations that are not clearly defined, whereby data is gathered, enabling the researcher to gradually develop the underlying theory. A summary of the Grounded Theory procedures is provided in Figure 1.

A variety of techniques can be employed to ascertain companies' perceptions of the CE and to elucidate the motivations underlying their adoption of such practices. Qualitative techniques are preferred, such as conducting individual in-depth interviews [20]. As posited by the author of [21], the semi-structured interview is distinguished by fundamental inquiries that are reinforced by theoretical and empirical propositions pertinent to the subject matter. This process gives rise to novel theoretical and empirical propositions that emerge from the respondents' responses. These serve the purposes of Grounded Theory and are supported by the author of [22].

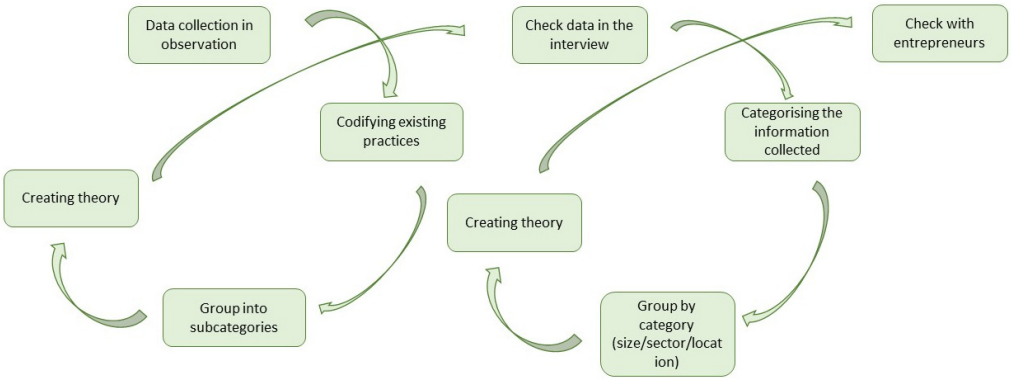

Figure 1. Grounded Theory flowchart.

The semi-structured interviews are conducted in accordance with a series of defined stages, as illustrated in Figure 2.

Figure 2. Semi-structured interview flowchart: stages and decisions prior to collecting information.

Semi-structured interviews are a field of discovery, and it is therefore important to prepare an auxiliary script that helps to conduct the interview in an acceptable manner and to avoid serious forgetfulness. It is fundamental for the interviewees to feel comfortable so that they have the freedom to speak and for the interviewer to question them. A topic-based script may assist the interviewer in mapping out the desired outcomes of the interaction process. However, an itemized script may be more suitable for experienced interviewers and researchers [23]. It is also strongly recommended that an initial script be tested in order to allow for adjustments to be made prior to the commencement of fieldwork [24]. Consequently, based on the insights gained from each interview, the script can be adapted at this stage and subsequently during the semi-structured interviews, as it is crucial to develop theories on the subject matter.

It is recommended that interviews be conducted with senior managers who are not necessarily partners in the companies being interviewed. To avoid any discomfort on the part of the interviewee, which could result in a reduction in the information transmitted, it is preferable that the interview be conducted in the interviewee's company. As posited by the author of [25], the human brain is capable of maintaining focus on a singular object for approximately 50 to 60 min. Following this period, attention inevitably wanes. Therefore, interviews should be conducted for a maximum of 50 min to ensure optimal data collection. To prevent the loss of information, it is recommended that interviews be recorded and that the transcript be accessible only to the interviewer, thus avoiding inadvertent disclosure to the interviewee.

Once the semi-structured interview script has been drafted, it is essential to select a representative sample of companies that accurately reflects the business reality of Portuguese SMEs. To ensure the reliability of subsequent statistical analyses, the sample size should exceed 30 companies. To assess the representativeness of the sample, three dimensions were employed that are commonly utilized to characterize business universes: location of headquarters, size, and sector of activity. In regard to the location of the head office, the company's tax head office should be taken into account for each company, irrespective of whether the company has multiple business units. In terms of size, it is recommended that the classification system used to divide economic activities into primary, secondary, and tertiary sectors be adopted [26]. With regard to the sector of activity, it is recommended that the 2003/361/EC Recommendation of the European Commission, dated 6 May 2003,

be adopted. This recommendation considers the parameters of annual work units, annual turnover, and annual balance sheet total, and it classifies companies into two categories: Large Companies and SMEs. SMEs are further classified into micro-enterprises, small enterprises, and medium-sized enterprises [27]. Following an analysis of the Portuguese business fabric based on 2022 figures [28], it can be concluded that the sample should be composed primarily of companies based in urban areas, operating within the tertiary sector and falling within the micro-enterprise size category, as illustrated in Figure 3.

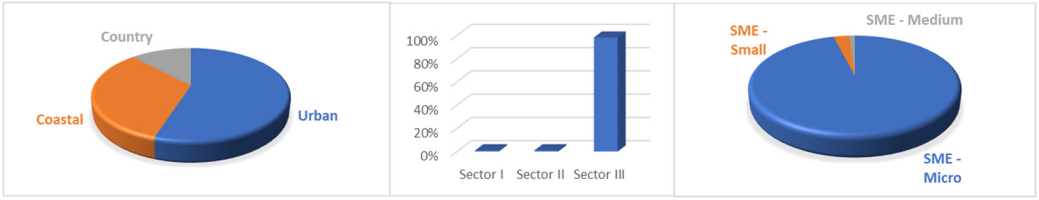

Figure 3. Distribution of Portuguese companies by the different variables analyzed.

Following the completion of the interviews, an initial quantitative analysis was conducted on the resulting data, with each company being characterized using descriptive statistics in the SPSS software. Subsequently, the filmed interviews were transcribed using NVivo Transcription software, and a thematic analysis was conducted in a precise, consistent, exhaustive, and systematic manner using NVivo software [29]. The objective of the thematic analysis was to identify the most frequently discussed themes and to ascertain whether there are any interconnections between them.

3. Preparing the Interviews

3.1. Refining the Process

The initial script was constructed based on the researchers' understanding and sensitivity to the issue in question, as well as on guidelines taken from the other authors of the articles included in the analysis described in Section 1. These guidelines supported the construction of the initial script. To ensure consistency in the interview process, the pilot interviews were conducted in the four selected companies (E1, E2, E3, and E4) over a short period of time. This approach prevented the interviewer's behavior from differing between the initial and final interviews. The interviews were conducted on the premises of each company and were recorded with the prior consent of the interviewees. In accordance with ethical considerations, interviews were limited to a maximum duration of 50 min.

Following the interviews, a site visit was conducted to assess the CE practices observed, in alignment with the recommendations set forth by the authors [13]. This allowed for the identification of any inconsistencies between the observed practices and the interview results. The interviews conducted on the premises of the four companies revealed a general lack of knowledge about the CE among the business owners. A total of 18 CE practices were presented by the interviewees. A subsequent visit to the premises of each company revealed that 31 practices had in fact been implemented, as shown in Table 1.

In conclusion, the observed practices that were not identified by the entrepreneurs can be classified into nine distinct typologies. As posited by the authors of [7], reduction in and optimization of raw material usage represents a favorable scenario wherein current resources can be re-evaluated, thereby facilitating the development of new projects and improving the current environmental impact and waste reduction. This is regarded as an exemplary CE practice. Additionally, the concept of industrial symbiosis was identified as a group of practices that were observed but not identified by the entrepreneurs. As posited by the authors of [30], industrial symbiosis is regarded as an efficacious practice conducive to the CE and sustainable development, as it can enhance the technical efficiency of production processes. Another group of practices implemented and not mentioned by the entrepreneurs was the use of reusable packaging. According to the authors of [31], this should be promoted through the eco-design of packaging to reduce the materials used

in packaging and the use of materials with high reusability and recyclability rates. The utilization of life extension, which, according to the authors of [32], enhances the useful life of products, represents one of the most efficacious environmental strategies. Consequently, repair constitutes a fundamental aspect of the CE approach, which strives to maintain products and materials in use for an extended period. The supply chain, which the authors of [33] assert plays a significant role in certain sectors, is responsible for a considerable portion of greenhouse gas emissions. Additionally, the transformation of goods into product–service systems was not identified by the entrepreneurs. The authors posit that transitioning from product-oriented to business models based on product-as-a-service systems can facilitate the implementation of circularity while enhancing organizational competitiveness [34].

Table 1. CE practices detected in the test companies.

Data	C1	C2	C3	C4
CE practices mentioned by interviewees	Utilisation of waste such as MP—macdame, crusher	Extend service life—better build quality, used repair	Repairing items	Shared mobility with other companies
	Industrial integration (manufacturing)	Utilising waste as PM—stuffing cushions	Reduced energy consumption—led lighting	Reducing paper use
	Reduced energy consumption—led lighting	Reduced energy consumption—led lighting	Reducing energy consumption—Shop window lighting	Digitisation for remote assistance
	Sorting rubbish for recycling	Sorting rubbish for recycling	Sorting rubbish for recycling	Sorting rubbish for recycling
				Reduced energy consumption—AC rules
				Marketing
CE practices detected during the visit to the test companies	Waste reduction—diamond wire cutting	Industrial integration (production)—exchange of waste with other companies	Laundry—collection point	Extended product life with guarantees and maintenance
	Current inverters—reducing consumption	Sustainable products and packaging—recover delivery packaging	Sale of batches of discontinued products	Shared product—through (REC) Renewable Energy Community
	Reducing emissions—quarry rights plans	Product remanufacturing—sofa restoration	Product as a service—Renting uniforms	Reduced consumption—panels increase from 350 W to 550 W
				Product as a service—equipment hire

Figure 4 depicts the survey of CE practices referenced by the entrepreneurs in the interviews and the subsequent survey conducted by the entrepreneurs after their visits to the companies' premises. This survey enabled the observation of all CE practices implemented by the companies.

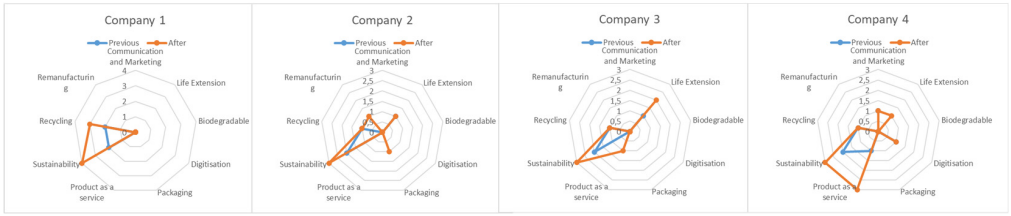

Figure 4. Survey of CE practices by interviewing the entrepreneur and visiting the company's premises to observe the CE practices adopted.

It is noteworthy that the number of CE practices initially identified by the entrepreneurs in the four test companies totaled 18. However, subsequent on-site observations revealed a total of 31 CE practices, including those initially mentioned by the entrepreneurs.

With regard to the tested script, areas for improvement were identified, some of which pertained to the necessity of acquiring further information about the companies in question in advance, with the view of facilitating subsequent comparisons. Furthermore, it was evident that in certain instances, the companies were engaged in CE practices that the interviewees did not identify as such, indicating a potential lack of familiarity with the subject matter. Accordingly, we resolved to not only modify the preliminary script but also compile preliminary information that would elucidate the CE, providing exemplars of practices that companies could potentially be developing. Furthermore, it was resolved that the companies would be requested to visit the premises in advance to document any CE practices they might observe, given that a considerable number of the companies engage in CE practices but do not classify them as such or are unaware that they constitute CE practices. At this juncture, it became evident that there is still a considerable deficit of knowledge regarding the CE among Portuguese businesses. As posited by the authors of [9], both the company's turnover and its age are factors that influence the level of circularity that it exhibits. Consequently, specific information on these topics was incorporated into the study. Figure 5 illustrates the initial version of the script, with subsequent changes highlighted in red. These modifications resulted in the final construction of the script, which was utilized to conduct the semi-structured interviews. Prior to this, a site visit was conducted. The final version of the semi-structured interview script is available in Appendix C.

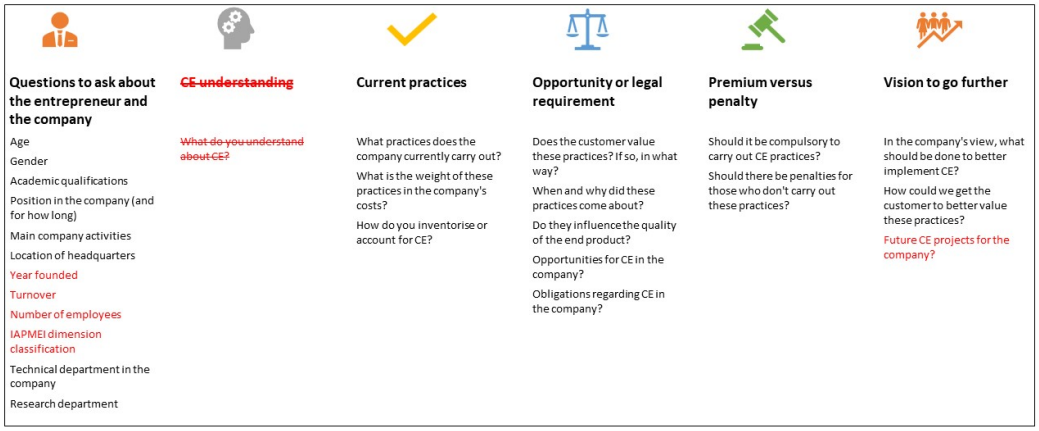

Figure 5. Script used in the semi-structured interviews with all the companies, showing the changes between the initial script and the final amended one in red.

It should be noted that with regard to the rules governing the conduct of the interviews, we decided not to film them, as it was felt that this would result in the interviewee being less relaxed and would influence the quality of the interview. It became evident during the four pilot interviews that filming the interview presents a significant constraint, leading the entrepreneur to refrain from expressing themselves freely on the subject matter. Given

the decision to employ a subjective convenience sampling process, largely influenced by the ease of contact, it is essential that the sample composition ensures an acceptable level of representativeness of the target population (Portuguese SMEs) and a sufficient sample size to enable statistical analysis, thereby enhancing the reliability of the conclusions drawn.

3.2. Sample Constitution and Characterization

The 34 companies selected were guaranteed to be accessible and available for the interview process. This group is larger than is usually recommended, exceeding the threshold of 30. With regard to their representativeness in relation to the population, the selected companies appear to be reasonably representative (see Figure 6). They can therefore be considered representative of Portuguese SMEs in terms of the dimensions typically covered. No notable discrepancies exist between the population and the sample with respect to the location of the company's headquarters. With regard to the sector of activity, the sample exhibits a greater prevalence of primary and secondary sectors than the population it aims to represent. However, this was not deemed a cause for concern, given that CE practices have more significant implications in these sectors. Finally, with regard to company size, there is a notable discrepancy between the sample and the population. However, this is not a cause for concern, given that micro-enterprises encompass small business owners with a practically non-existent company structure. The sample is comprised of companies that are, on average, slightly larger than the average Portuguese business. However, in the Portuguese business context, the majority of businesses are micro-enterprises.

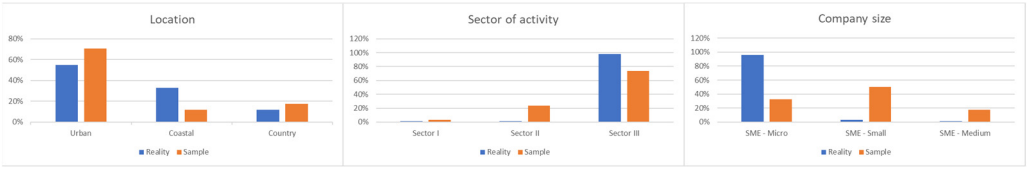

Figure 6. Representativeness of the sample in relation to the Portuguese reality.

Some authors have posited that gender, age group, and level of education exert an influence on the prominence accorded to issues pertaining to CE [35,36]. Accordingly, it was deemed pertinent to take into account the identity of the interview interlocutor in each of the companies that were interviewed. However, this characteristic did not inform the formation of the sample. It was thus resolved to gather data regarding the gender, age cohort, and level of qualification of each interviewee. In terms of qualifications, the European Qualifications Framework classification, as set forth in the Council Recommendation of 22 May 2017, was utilized. The interviewees exhibited considerable variation in terms of their qualifications and age, as illustrated in Figure 7.

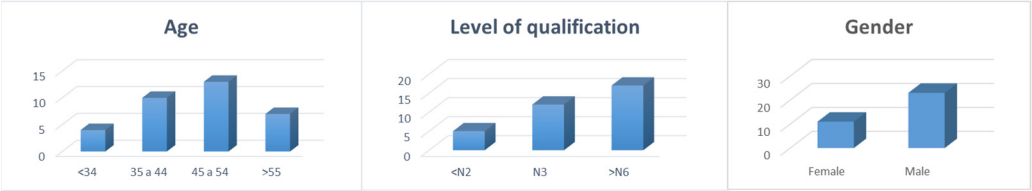

Figure 7. Level of education, age, and gender of interviewees.

Information was gathered regarding the presence of a research and development department and the number of personnel employed in these departments. A survey was conducted to ascertain whether the company had obtained certification in any field, including quality, and to determine the number of existing certifications. Figure 8 illustrates that the majority of companies in this sample lacked certification, yet a considerable proportion of them did possess an R&D department, albeit a modest one.

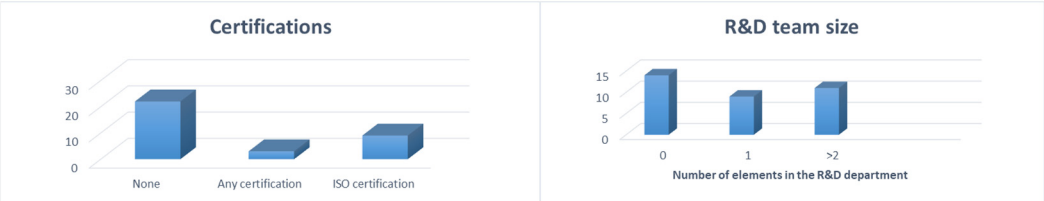

Figure 8. Companies with certifications and size of R&D department.

The semi-structured interviews and observations conducted at the companies' premises were always carried out by a manager or, in a few cases, by the company's CEO. The complete data resulting from the semi-structured interviews with the 34 companies can be found in Appendix A.

4. Interview Results

4.1. Quantitative Analysis

The results obtained from the interviews were employed to ascertain whether the extant CE practices in the companies were in any way attributable to the characteristics of the interviewees or the companies under analysis. It is similarly important to ascertain whether there is any correlation between the CE practices that have been implemented in the companies in question in order to determine whether the implementation of one specific practice can act as a trigger for the implementation of another related practice.

The data obtained from the sample of 34 companies were divided into three blocks of variables: information on the interviewed manager (Block M; three variables: gender of the interviewed, age of the interviewed, and interviewee qualification level), information on the company (Block C; six variables: economic activity, headquarters location, year of company foundation, company size, size of the technical department, and existing certifications), and information on commitment to CE (Block E; three variables: implemented CE practices, disclosure of implemented CE practices, and valuation of CE practices by the client). Given the ordinal nature of the variables in question, their relationship was analyzed using Spearman's correlation coefficient. The values obtained and their significance are presented in Appendix B, with Figure 9 highlighting the cases in which the null correlation is rejected at a significance level of 5% (in orange) or 1% (in red).

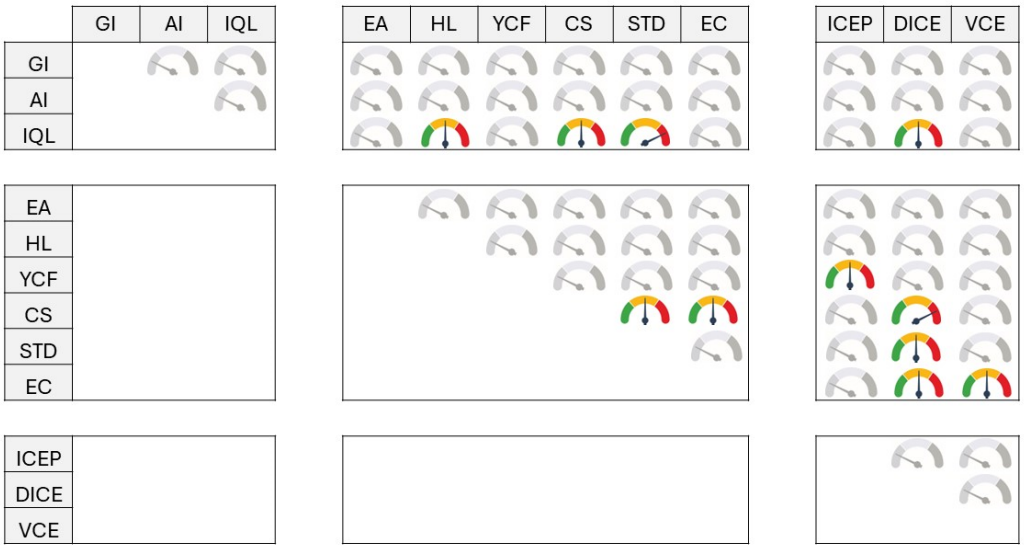

Figure 9. Sample characteristics' correlation matrix.

Between variables in the same block (whether M, C, or E), significant correlations were only detected in Block C, involving variables related to the scale of the business (company size, size of the technical department, and existing certifications). It is strange to note the weak relationship between the variables in Block E, revealing a somewhat incoherent view of the transition to circularity.

From Block M, the interviewee qualification level stands out, which is significantly related to headquarters location, company size, and the size of the technical department, all from Block C, as well as the disclosure of implemented CE practices from Block E, which seems to make sense.

Blocks C and E are the most closely related, with three of the five significant correlations identified involving disclosure of implemented CE practices, which is clearly associated with the scale of the business (company size, size of the technical department, and existing certifications). Not only are newer companies the ones that have implemented the most CE practices, but companies with the most certifications are also the ones that have the least belief in the customer's appreciation of CE, which may seem surprising at first glance. In fact, it seems natural to us that CE is a paradigm that is more favored by institutions that are more open to modernity, but we also understand the difficulty in basing the transition to CE on certification processes that are usually linked to quality management.

In short, the interviewee qualification level (Block M), the scale of the business (Block C), and the disclosure of implemented CE practices (Block E) take center stage in the relationships analyzed.

The CE practices implemented by the sample of 34 companies can be grouped into nine sub-themes, which have already been defined by the authors in previous research [37]: communication and marketing; life extension; biodegradable; digitalization; packaging; product as a service; sustainability; recycling; and remanufacturing. After collecting information on the CE practices implemented in the companies, we can see that remanufacturing is the opposite of digitalization in terms of CE practices, although the implementation of life extension practices is largely associated with remanufacturing. Figure 10 shows the distribution of CE practices implemented by the companies interviewed.

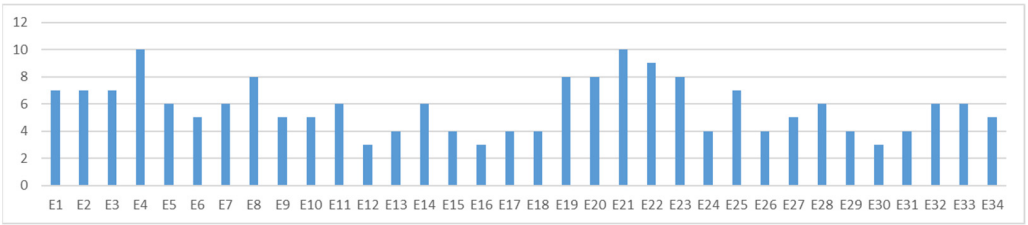

Figure 10. Number of CE practices observed in the companies interviewed.

Regarding the three variables that characterize the relationship between each of the business realities contacted and the CE, an attempt was also made to ascertain whether a regression analysis could lead to models capable of explaining their behavior. In all three cases, it only proved meaningful to include a single explanatory variable.

The ordinal regression analysis for implemented CE practices selected year of company foundation as the explanatory variable; the model obtained was Nagelkerke R Square 0.20, and its approximation to the sample was not rejected. The binary logistic regression analysis relating to disclosure of implemented CE practices selected company size as the explanatory variable, with the model obtained having a Nagelkerke R Square of 0.40, with a hit rate against the sample of 82.4%. Lastly, the ordinal regression analysis for valuation of CE practices by the client selected existing certifications as the explanatory variable, and the model obtained was Nagelkerke R Square 0.28, with no rejection of its approximation to the sample.

4.2. Qualitative Analysis of the Results

The responses provided by the 34 interviewees were subjected to qualitative analysis in order to identify the propositions that were most evident and most frequently mentioned by the interviewees. Eight propositions were identified that were consistent across the majority of interviewees and aligned with the characteristics of the companies included in the statistical sample. Although some of these responses are not quantitative and it was not possible to quantify their intensity in order to compare them between companies, they demonstrate common trends that we believe may be relevant to understanding the state of implementation of the CE in SMEs in Portugal.

It is important to note that semi-structured interviews employ a combination of structured and open-ended questions, allowing both the interviewee and the interviewer flexibility in exploring the subject matter. The initial 12 questions in the questionnaire were addressed exclusively in a quantitative manner. The information obtained from the open section of the semi-structured interview was classified as a "free question," and a relationship can be identified between the questions posed to the interviewees and the eight propositions outlined in Figure 11.

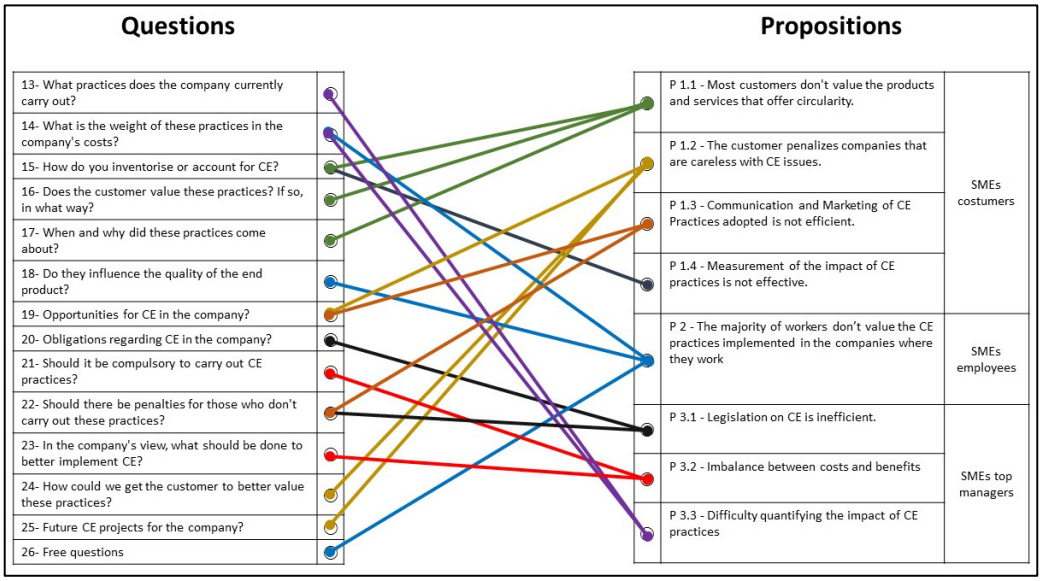

Figure 11. Relationship between semi-structured interview questions and the prepositions found.

Subsequently, the propositions were organized according to their respective stakeholders.

SME customers

P 1.1—Customers might not value products and services that offer circularity

Despite expressing sympathy for the issue of product circularity, the majority of customers do not prioritize this feature when making purchasing decisions. They are willing to accept minimal trade-offs, including price and delivery time, to obtain products or services that align with their preferences. However, they tend to place a higher value on packaging than on the circularity of the product itself.

P 1.2—Customers could penalize companies that are careless with CE issues

The implementation of CE practices does not necessarily attract customers; however, their complete non-implementation may potentially jeopardize customer retention. It is challenging for customers to differentiate between concepts such as CE, sustainability, the environment, decarbonization, and global warming. They do not demonstrate a preference for any particular topic, which may result in their disengagement. The consumer's sense of ownership over products is a significant factor that presents a challenge in implementing solutions for sharing goods or services, or for providing the product as a service.

P 1.3—Communication and marketing of CE Practices adopted is not efficient

The communication of CE practices does not generate sales, in part because consumers consider them to be insignificant in the context of the current serious environmental problem. Nevertheless, the absence of communication regarding these measures has the potential to foster customer dissatisfaction. It is challenging for marketing departments to disseminate information about some of the environmental measures that companies have implemented due to their intricate nature.

P 1.4—Measurement of the impact of CE practices is not effective

There is a general lack of confidence in the measures presented and communicated by companies, with customers expressing skepticism about their validity and questioning the credibility of the information provided. Furthermore, in some instances, customers may encounter difficulty in comprehending the benefits being conveyed.

SME employees

P 2—The majority of workers might not value the CE practices implemented in the companies where they work

The majority of the company's employees believe that CE practices are pointless or even harmful if they affect their professional performance in the company, thus acting as a barrier to the implementation of CE.

According to the interviewees, the majority of employees are skeptical about the effectiveness of the implemented CE practices, and the employees believe that the implementation of such practices is not reflected in a decrease in costs for the company, but rather in an increase in costs due to the increase in work performed. It was also mentioned by several respondents that most employees prefer to work with virgin raw materials rather than recycled, recovered, or reused raw materials. In this way, they believe that the eclecticism of the workers can affect the quality of the final product.

SME top managers

P 3.1—Legislation on CE could be inefficient

The extant environmental legislation in Portugal is excessive and overly complex, decentralized, and frequently amended, thereby rendering it challenging for companies to comply with the legislation and implement certain CE practices. Furthermore, it impedes the implementation of certain CE practices, and some are ineffectual. Additionally, there is a dearth of support from governmental organizations in Portugal. While they are adept at disseminating information regarding prohibited activities, they are less proficient in devising tailored solutions to address the unique challenges faced by companies. There is a consensus that the authorities in Portugal lack sufficient control. Despite the demanding legislation, it is more cost-effective to violate the law than to make the necessary investments to comply with it.

P 3.2—There might be an imbalance between costs and benefits

There is a discernible imbalance between costs and benefits, which gives rise to the perception among entrepreneurs that a considerable number of beneficial CE practices are subject to an imbalance between costs and benefits. It is noteworthy that the majority of entrepreneurs indicated their intention to implement additional CE practices. However, the majority of these practices are designed to reduce costs in the near term or are perceived by entrepreneurs to reduce costs in the medium term or stabilize costs, thereby reducing their companies' exposure to risk.

P 3.3—It could be difficult to quantify the impact of CE practices

The majority of interviewees encountered difficulties in measuring the impact of the CE practices they had implemented and even in accounting for them. The actual impact of certain measures, despite the availability of certain standard indicators, is not straightforward to quantify. The most common approach is to make comparisons with

other values through approximation, thus facilitating customer comprehension of the implemented measures.

5. Conclusions

The findings of this research indicate that there is currently a limited uptake of CE practices in Portugal. Furthermore, there is a lack of conviction among stakeholders to implement the CE on a large scale, suggesting that there is still a significant gap between the linear economy and the CE. Some companies that have implemented CE practices have encountered difficulties in communicating them for marketing purposes. In some cases, the challenges in communicating these practices have been so significant that it has not been worthwhile to invest in them, as customers do not perceive their value. Furthermore, it was highlighted that there is currently no standardized methodology for accounting for the implementation of CE practices, nor for assessing their effects and consequences. Therefore, a company that reports the implementation of two CE practices without quantifying the impact of these measures is analogous to reporting "smoke." In light of these considerations, it can be concluded that customer acceptance of this type of measure remains low. It is noteworthy that some of the CE practices implemented in the companies under review were the initiative of the entrepreneurs themselves.

The results of the analysis of the companies in question indicate a certain lack of coherence in their approach to the transition to circularity. There is no discernible correlation between the CE practices that have been implemented, leaving it to the discretion of the company decision-makers which CE practices they choose to implement. This suggests a somewhat unusual vision of the transition to circularity. Additionally, it was observed that the most recent companies are those that have implemented the greatest number of CE practices. Furthermore, the companies with the most certifications are also the ones that least believe in the value placed on CE by customers. In short, the level of qualification of decision-makers in companies, the size of the business, and the dissemination of CE practices implemented all influence the CE practices implemented by companies.

5.1. Limitations

This research had some limitations in its scope. Despite the variety of sectors included in the sample, some sectors with a significant economic impact in Portugal, such as agriculture, tourism, and catering, were not represented. Furthermore, an exhaustive survey of all CE practices was attempted, though the time elapsed since implementation was not monitored. This was done to ascertain whether the CE practices' ineffectiveness with consumers was due to their recent introduction. It is also noteworthy that none of the companies included in the sample were exclusively domestic, and there were no multinational corporations.

It would be beneficial to conduct further research on this topic, specifically examining the impact of CE practices on B2B and B2C customers separately. In this research, no distinction was made with regard to this particular aspect; rather, all were included as a single entity. It would be beneficial for future research to assess the influence of subsidies obtained by companies when implementing CE on consumer receptivity and company sales. It would be beneficial to conduct a similar analysis from the perspective of the consumer, rather than that of the companies.

It is also important to note that only small- and medium-sized enterprises (SMEs) were included in the study, and that the behavior of larger companies may differ from that observed in this study. This research was focused on SMEs, given that they constitute the majority of businesses in the European Union market. Nevertheless, some scholars have examined how companies responded to the challenges posed by the global pandemic. Their findings suggest that the pandemic led to a concentration and centralization of capital, with companies with more robust financial structures demonstrating greater resilience to the pandemic's impact. This, in turn, has resulted in the marginalization of smaller and less capitalized companies, which have been perceived as a threat to the survival of the

industry [38]. The present article did not investigate whether the behavior of SMEs differs from that of large companies with regard to the implementation of CE.

5.2. Theoretical and Practical Implications

This work contributes to a more comprehensive understanding of the implementation of the CE by SMEs in Portugal and provides insights into the factors that contribute to the observed delay in implementing circularity in Portugal compared to other European Union member states. With regard to the Portuguese business community, this work is expected to provide insight into consumer behavior in relation to the CE phenomenon and their lack of interest in this topic in the consumer choices they make on a daily basis. It seems imperative that the implementation of the CE will have to be stimulated by legal regulations, given the lack of demand-driven stimulus at this stage. This research lays the foundations for future work on the perception of CE accelerators, given that the consumer is clearly not the trigger for implementing the CE.

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Appendix A. List of Companies Interviewed

Data	Age	Level of Qualification	Gender	No. of Employees	EAC Rev 3 Main	Technical and R&D Staff	Turnover	Dimension	Headquarters Location	Foundation Year	Certifications
E1	34	N3	M	27	08112	2	1,033,536.74 €	SME—Small	Country	1987	None
E2	52	N6	F	14	31091	0	418,227.00 €	SME—Small	Urban	2008	None
E3	48	N6	M	4	47711	0	195,735.05 €	SME—Micro	Urban	1964	None
E4	23	N7	F	5	68200	1	732,726.45 €	SME—Medium	Urban	2015	None
E5	44	N3	M	15	81300	1	316,770.96 €	SME—Micro	Urban	2013	None
E6	62	N3	M	37	46341	0	7,809,009.71 €	SME—Small	Urban	1993	None
E7	36	N7	M	17	91030	2	415,955.49 €	SME—Small	Urban	2011	None
E8	44	N4	F	16	46732	0	2,017,035.20 €	SME—Small	Coastal	1985	ISO 9001
E9	41	N7	M	17	68322	1	382,997.77 €	SME—Medium	Urban	2004	None
E10	31	N6	F	61	43210	2	1,395,609.96 €	SME—Medium	Urban	2006	None
E11	57	N6	M	48	86220	2	2,386,940.12 €	SME—Medium	Urban	1998	DGERT; ERS
E12	32	N3	F	7	93293	0	266,019.70 €	SME—Micro	Urban	2016	None
E13	51	N3	M	12	47300	0	2,617,424.69 €	SME—Small	Urban	1999	None
E14	55	N6	M	15	46421	0	2,215,956.73 €	SME—Small	Country	2005	ISO 9001
E15	50	N6	M	11	71120	1	374,700.04 €	SME—Small	Urban	1994	ISO 9001
E16	44	N3	M	3	45200	0	206,518.92 €	SME—Micro	Urban	1989	None
E17	47	N3	M	4	45200	0	238,291.06 €	SME—Micro	Urban	1987	None
E18	39	N1	M	5	25120	0	461,362.51 €	SME—Micro	Country	1980	None
E19	60	N2	M	25	47112	0	4,282,819.87 €	SME—Small	Country	1994	None
E20	45	N2	M	8	56101	0	371,746.53 €	SME—Micro	Urban	2000	None
E21	43	N6	M	93	31091	6	13,292,221.08 €	SME—Medium	Urban	2004	ISO 9001; ISO 14000
E22	46	N3	M	14	47410	1	888,407.03 €	SME—Medium	Urban	1995	ISO 9001
E23	68	N2	M	6	31091	1	502,570.72 €	SME—Micro	Urban	1989	None
E24	34	N6	F	11	81100	0	176,240.73 €	SME—Small	Urban	2013	None
E25	45	N6	F	46	46610	2	6,078,560.11 €	SME—Small	Country	1998	ISO 9001
E26	50	N6	F	19	47591	1	1,573,238.17 €	SME—Small	Urban	1998	None
E27	42	N6	M	7	62020	3	361,434.47 €	SME—Micro	Urban	2016	None
E28	46	N6	M	9	62020	2	469,864.81 €	SME—Micro	Urban	2008	None
E29	47	N7	F	18	85591	2	1,157,343.00 €	SME—Small	Urban	1990	DGERT

Data	Age	Level of Qualification	Gender	No. of Employees	EAC Rev 3 Main	Technical and R&D Staff	Turnover	Dimension	Headquarters Location	Foundation Year	Certifications
E30	45	N6	F	10	85591	2	1,797,810.00 €	SME—Small	Urban	2000	DGERT
E31	58	N3	F	3	96010	0	55,887.76 €	SME—Micro	Country	2003	None
E32	44	N6	M	38	16293	2	2,794,753.42 €	SME—Small	Coastal	1982	ISO 9001; ISO 14000
E33	53	N3	M	14	23120	1	1,041,760.06 €	SME—Small	Coastal	1994	ISO 9001
E34	55	N2	M	16	18120	1	921,615.02 €	SME—Small	Urban	2012	ISO 9001; FSC

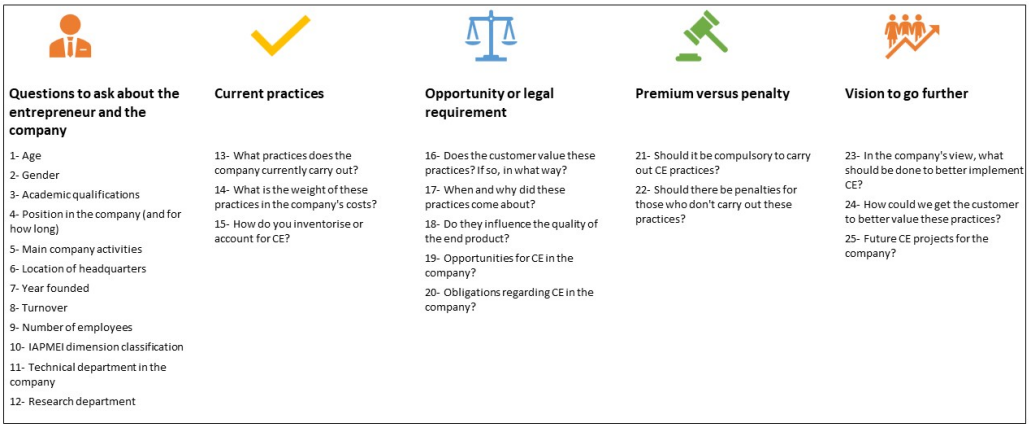
Appendix B. Spearman Correlations

			GI	AI	IQL	EA	HL	YCF	CS	STD	EC	ICEP	DICE	VCE
Spearman's rho	GI	Correlation Coefficient	1000	0.212	−0.250	−0.242	0.089	0.112	−0.158	0.007	0.030	0.011	−0.061	−0.116
		Sig, (2-tailed)		0.228	0.154	0.167	0.618	0.527	0.373	0.969	0.864	0.951	0.732	0.514
		N	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000
	AI	Correlation Coefficient	0.212	1000	−0.295	0.195	0.128	0.120	−0.103	−0.157	0.186	−0.135	0.004	−0.065
		Sig, (2-tailed)	0.228		0.091	0.270	0.469	0.499	0.564	0.376	0.292	0.445	0.983	0.713
		N	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000
	IQL	Correlation Coefficient	−0.250	−0.295	1000	0.283	−0.378 *	−0.138	0.401 *	0.555 **	0.201	−0.078	0.415 *	0.085
		Sig, (2-tailed)	0.154	0.091		0.105	0.027	0.435	0.019	0.001	0.255	0.662	0.015	0.633
		N	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000
	EA	Correlation Coefficient	−0.242	0.195	0.283	1000	−0.052	0.038	0.092	−0.157	−0.035	−0.286	0.153	0.090
		Sig, (2-tailed)	0.167	0.270	0.105		0.770	0.832	0.604	0.376	0.843	0.101	0.388	0.614
		N	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000
	HL	Correlation Coefficient	0.089	0.128	−0.378 *	−0.052	1000	0.060	−0.025	−0.249	0.235	0.142	−0.141	−0.115
		Sig, (2-tailed)	0.618	0.469	0.027	0.770		0.737	0.887	0.156	0.181	0.423	0.427	0.518
		N	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000

			GI	AI	IQL	EA	HL	YCF	CS	STD	EC	ICEP	DICE	VCE
Spearman's rho	YCF	Correlation Coefficient	0.112	0.120	−0.138	0.038	0.060	1000	−0.147	−0.151	0.101	−0.373 *	−0.285	−0.063
		Sig, (2-tailed)	0.527	0.499	0.435	0.832	0.737		0.407	0.395	0.570	0.030	0.102	0.723
		N	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000
	CS	Correlation Coefficient	−0.158	−0.103	0.401 *	0.092	−0.025	−0.147	1000	0.379 *	0.428 *	−0.044	0.510 **	−0.134
		Sig, (2-tailed)	0.373	0.564	0.019	0.604	0.887	0.407		0.027	0.012	0.806	0.002	0.448
		N	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000
	STD	Correlation Coefficient	0.007	−0.157	0.555 **	−0.157	−0.249	−0.151	0.379 *	1000	0.313	−0.031	0.381 *	−0.063
		Sig, (2-tailed)	0.969	0.376	0.001	0.376	0.156	0.395	0.027		0.071	0.861	0.026	0.722
		N	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000
	EC	Correlation Coefficient	0.030	0.186	0.201	−0.035	0.235	0.101	0.428 *	0.313	1000	−0.014	0.377 *	−0.426 *
		Sig, (2-tailed)	0.864	0.292	0.255	0.843	0.181	0.570	0.012	0.071		0.939	0.028	0.012
		N	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000
	ICEP	Correlation Coefficient	0.011	−0.135	−0.078	−0.286	0.142	−0.373 *	−0.044	−0.031	−0.014	1000	−0.244	0.103
		Sig, (2-tailed)	0.951	0.445	0.662	0.101	0.423	0.030	0.806	0.861	0.939		0.165	0.561
		N	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000
	DICE	Correlation Coefficient	−0.061	0.004	0.415 *	0.153	−0.141	−0.285	0.510 **	0.381 *	0.377 *	−0.244	1000	−0.192
		Sig, (2-tailed)	0.732	0.983	0.015	0.388	0.427	0.102	0.002	0.026	0.028	0.165		0.277
		N	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000
	VCE	Correlation Coefficient	−0.116	−0.065	0.085	0.090	−0.115	−0.063	−0.134	−0.063	−0.426 *	0.103	−0.192	1000
		Sig, (2-tailed)	0.514	0.713	0.633	0.614	0.518	0.723	0.448	0.722	0.012	0.561	0.277	
		N	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000	34,000

*, Correlation is significant at the 0.05 level (2-tailed), **, Correlation is significant at the 0.01 level (2-tailed), GI—Gender of the interviewed; AI—Age of the interviewed; IQL—Interviewed's qualification level; EA—Economic activity; HL—Headquarters location; YCF—Year of company foundation; CS—Company size; STD—Size of the technical department; EC—Existing certifications; ICEP—Implemented CE practices; DICE—Disclosure of implemented CE practices; VCE—Valuation of CE practices by the client.

Appendix C. Semi-Structured Interview Guide



Questions to ask about the entrepreneur and the company	Current practices	Opportunity or legal requirement	Premium versus penalty	Vision to go further
1- Age 2- Gender 3- Academic qualifications 4- Position in the company (and for how long) 5- Main company activities 6- Location of headquarters 7- Year founded 8- Turnover 9- Number of employees 10- IAPMEI dimension classification 11- Technical department in the company 12- Research department	13- What practices does the company currently carry out? 14- What is the weight of these practices in the company's costs? 15- How do you inventorise or account for CE?	16- Does the customer value these practices? If so, in what way? 17- When and why did these practices come about? 18- Do they influence the quality of the end product? 19- Opportunities for CE in the company? 20- Obligations regarding CE in the company?	21- Should it be compulsory to carry out CE practices? 22- Should there be penalties for those who don't carry out these practices?	23- In the company's view, what should be done to better implement CE? 24- How could we get the customer to better value these practices? 25- Future CE projects for the company?

References

1. Medaglia, R.; Rukanova, B.; Zhang, Z. Digital government and the circular economy transition: An analytical framework and a research agenda. *Gov. Inf. Q.* **2024**, *41*, 101904. [CrossRef]
2. Meramveliotakis, G.; Manioudis, M. History, knowledge, and sustainable economic development: The contribution of john stuart mill's grand stage theory. *Sustainability* **2021**, *13*, 1468. [CrossRef]
3. Circular Material Use Rate. Eurostat. Available online: https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20231114-2 (accessed on 15 May 2024).
4. Lima, F. Empresas em Portugal–2020. 2022.
5. Kannazarova, Z.; Juliev, M.; Muratov, A.; Abuduwaili, J. Groundwater in the commonwealth of independent states: A bibliometric analysis of scopus-based papers from 1972 to 2023, emphasizing the significance of drainage. *Groundw. Sustain. Dev.* **2024**, *25*, 101083. [CrossRef]
6. Silva, J.; Raposo, D.; Neves, J.; Silva, F.; Ribeiro, R.; Fernandes, M.E. Gamification in Communicating the Concept of Circular Economy—A Design Approach. In *Advances in Ergonomics in Design*; Rebelo, F., Ed.; Springer International Publishing: Cham, Switzerland, 2021; pp. 10–17.
7. Oliveira, J.C.; Lopes, J.M.; Farinha, L.; Silva, S.; Luízio, M. Orchestrating entrepreneurial ecosystems in circular economy: The new paradigm of sustainable competitiveness. *Manag. Environ. Qual. Int. J.* **2022**, *33*, 103–123. [CrossRef]
8. Chaudhuri, A.; Subramanian, N.; Dora, M. Circular economy and digital capabilities of SMEs for providing value to customers: Combined resource-based view and ambidexterity perspective. *J. Bus. Res.* **2022**, *142*, 32–44. [CrossRef]
9. Bassi, F.; Guidolin, M. Resource efficiency and circular economy in european smes: Investigating the role of green jobs and skills. *Sustainability* **2021**, *13*, 12136. [CrossRef]
10. Bassi, F.; Dias, J.G. The use of circular economy practices in SMEs across the EU. *Resour. Conserv. Recycl.* **2019**, *146*, 523–533. [CrossRef]
11. Rizos, V.; Behrens, A.; Van Der Gaast, W.; Hofman, E.; Ioannou, A.; Kafyeke, T.; Flamos, A.; Rinaldi, R.; Papadelis, S.; Hirschnitz-Garbers, M.; et al. Implementation of circular economy business models by small and medium-sized enterprises (SMEs): Barriers and enablers. *Sustainability* **2016**, *8*, 1212. [CrossRef]
12. Despoudi, S.; Sivarajah, U.; Spanaki, K.; Charles, V.; Durai, V.K. Industry 4.0 and circular economy for emerging markets: Evidence from small and medium-sized enterprises (SMEs) in the Indian food sector. *Ann. Oper. Res.* **2023**, *23*, 1–17. [CrossRef]
13. Woodard, R. Waste Management in Small and Medium Enterprises (SMEs): Compliance with Duty of Care and implications for the Circular Economy. *J. Clean. Prod.* **2021**, *278*, 123770. [CrossRef]
14. Chakraborty, A.; Barton, A.; O'Loughlin, A.; Kandra, H.S. Exploratory Survey of Australian SMEs: An Investigation into the Barriers and Opportunities Associated with Circular Economy. *Circ. Econ. Sustain.* **2022**, *3*, 1275–1297. [CrossRef]
15. Bowen, R.; Dowell, D.; Morris, W. Hospitality SMEs and the circular economy: Strategies and practice post—COVID. *Br. Food J.* **2023**, *126*, 80–97. [CrossRef]
16. Garrido-Prada, P.; Lenihan, H.; Doran, J.; Rammer, C.; Perez-Alaniz, M. Driving the circular economy through public environmental and energy R&D: Evidence from SMEs in the European Union. *Ecol. Econ.* **2021**, *182*, 106884. [CrossRef]
17. Alami, S.; Desjeux, D.; Moussaoui, I. Les méthodes Qualitatives. Presses Universitaires de France, «Que sais-je?». 2019. ISBN 9782130817154. Available online: https://www.cairn.info/les-methodes-qualitatives--9782130817154.htm (accessed on 10 June 2024). [CrossRef]
18. Bogdan, R.C.; Biklen, S.K. *Investigaçao Qualitativa em Educaçao-Uma Introdução à Teoria e Aos Métodos*; Porto Editora: Porto, Portugal, 1994; ISBN 972-0-34112-2.
19. Bryant, A.; Charmaz, K. *The Sage Handbook of Grounded Theory*; SAGE Publications: Thousand Oaks, CA, USA, 2007; ISBN 978-1-4129-2346-0.

20. Maitiniyazi, S.; Canavari, M. Understanding Chinese consumers' safety perceptions of dairy products: A qualitative study. *Br. Food J.* **2021**, *123*, 1837–1852. [CrossRef]
21. Trivinos, A. *Introdução à Pesquisa Em Ciências Sociais: A Pesquisa Qualitativa em Educação*; Atlas: São Paulo, Brazil, 1987.
22. Dantas, A.R. ANÁLISE DE CONTEÚDO: UM CASO DE APLICAÇÃO AO ESTUDO DOS VALORES E REPRESENTAÇÕES SOCIAIS. In *Metodologias de Investigação Sociológica-Problemas e Soluções a Partir de Estudos Empíricos*; Edições Humus: Lisbona, Portugal, 2016; pp. 261–286. ISBN 978-989-755-223-6.
23. Manzini, E.J. Entrevista Semiestruturada: Análise de objetivos e de roteiros. *Semin. Int. Sobre Pesqui. Estud. Qual.* **2004**, *2*, 58–59.
24. de Sousa, J.R.; Santos, S.C.M.D. Análise de conteúdo em pesquisa qualitativa. *Rev. Pesqui. Debate Educ.* **2020**, *10*, 1396–1416. [CrossRef]
25. Lowen, A.M.D. Pleasure a creative Approach to Life; The Alexander Lowen Foundation. 2013. ISBN 9781938485114. Available online: http://www.summus.com.br (accessed on 2 April 2024).
26. Kenessey, Z. The primary, secondary, tertiary and quaternary sectors of the economy. *Rev. Income Wealth* **1987**, *33*, 359–385. [CrossRef]
27. Guia do Utilizador Relativo à Definição de PME. 2019. Available online: https://op.europa.eu/en/publication-detail/-/publication/756d9260-ee54-11ea-991b-01aa75ed71a1/language-pt (accessed on 4 April 2024).
28. Pequenas e Médias Empresas: Total e Por Dimensão. PORDATA. Available online: https://www.pordata.pt/pt (accessed on 4 April 2024).
29. Nowell, L.S.; Norris, J.M.; White, D.E.; Moules, N.J. Thematic Analysis: Striving to Meet the Trustworthiness Criteria. *Int. J. Qual. Methods* **2017**, *16*, 1–13. [CrossRef]
30. Fraccascia, L. The impact of technical and economic disruptions in industrial symbiosis relationships: An enterprise input-output approach. *Int. J. Prod. Econ.* **2019**, *213*, 161–174. [CrossRef]
31. Rubio, S.; Ramos, T.R.P.; Leitão, M.M.R.; Barbosa-Povoa, A.P. Effectiveness of extended producer responsibility policies implementation: The case of Portuguese and Spanish packaging waste systems. *J. Clean. Prod.* **2019**, *210*, 217–230. [CrossRef]
32. Laitala, K.; Klepp, I.G.; Haugrønning, V.; Throne-Holst, H.; Strandbakken, P. Increasing repair of household appliances, mobile phones and clothing: Experiences from consumers and the repair industry. *J. Clean. Prod.* **2021**, *282*, 125349. [CrossRef]
33. NoParast, M.; Hematian, M.; Ashrafian, A.; Amiri, M.J.T.; AzariJafari, H. Development of a non-dominated sorting genetic algorithm for implementing circular economy strategies in the concrete industry. *Sustain. Prod. Consum.* **2021**, *27*, 933–946. [CrossRef]
34. Hankammer, S.; Brenk, S.; Fabry, H.; Nordemann, A.; Piller, F.T. Towards circular business models: Identifying consumer needs based on the jobs-to-be-done theory. *J. Clean. Prod.* **2019**, *231*, 341–358. [CrossRef]
35. Gazzola, P.; Pavione, E.; Pezzetti, R.; Grechi, D. Trends in the fashion industry. The perception of sustainability and circular economy: A gender/generation quantitative approach. *Sustainability* **2020**, *12*, 2809. [CrossRef]
36. Švecová, L.; Ostapenko, G.; Veber, J.; Valeeva, Y. The implementation challenges of zero carbon and zero waste approaches. In *E3S Web of Conferences*; EDP Sciences: Kazan, Russia, 2019. [CrossRef]
37. Carreira, R.J.; Ferreira, J.V.; Ramos, A.L. The Consumer's Role in the Transition to the Circular Economy: A State of the Art Based on a SLR with Bibliometric Analysis. *Sustainability* **2023**, *15*, 15040. [CrossRef]
38. Meramveliotakis, G.; Manioudis, M. Sustainable development, COVID-19 and small business in Greecep: Small is not beautiful. *Adm. Sci.* **2021**, *11*, 90. [CrossRef]