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Strategic Organizational Sustainability in the Age of Sustainable Development Goals

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Abstract: This study aims to explore the implementation of sustainability strategies in Portuguese SMEs. The methodology used in this study is qualitative, and it was carried out via multiple case studies, through interviews, with companies located in Portugal. The interviewed companies revealed their management practices regarding sustainable innovation and a business model focused on sustainable economic, social, and environmental criteria. Regarding the management of sustainable innovation, we assessed the interviewed companies as having accommodative and proactive strategies. Consequently, measures were presented at the level of sustainable management that companies may implement in their operations involving the participation of various stakeholders. This study is original not only for being exclusively related to SMEs but also because it is the first to consider the context of Portuguese companies, thereby contributing to the existing literature on this subject.

Keywords: sustainable management; sustainable innovation; business model; business performance; Sustainable Development Goals (SDGs)

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1. Introduction

The Sustainable Development Goals (SDGs) of 2015 were recently included in the United Nations in the 2030 "Transforming the World" Agenda [1] to transform the economy at a global level. In this way, the SDGs combine policy objectives with visions for socio-economic development [2]. Thus, SDGs are considered integral to the engine of economic development, as well as social change, in public organizations, institutions, NGOs, and private companies. However, there is currently a growing need for critical analysis of the possibilities of SDG functioning as a strategic tool and vision for economic development, as well as for business management [1].

The business community increasingly states that it is necessary to encompass the notion of sustainability in their business activities and benefits. Several authors have presented the proper incentives for companies seeking to be efficient in their sustainability and innovation levels, as well as in all business opportunities [3,4].

From a societal point of view, organizational knowledge and change are manifested as essential elements for long-term success in pursuing sustainability. Their continuity is critical to achieving sustainable development (Lozano, 2014). That said, it is clear that knowledge and learning are key success factors for the implementation of sustainable supply chain management (SSCM) [5,6].

Sustainability being of utmost importance, it is to be noted that several demands are related to the environment; hence, there is a need to create sustainable methods for the

organizations' business [7,8]. The development of these new methods generates new possibilities for more attractive and much needed jobs, resulting in the improvement of people's quality of life. All this involvement of sustainability within organizations and business methods has been increasingly developed and, thus, has become indispensable to confront all environmental, social, and economic difficulties that may arise for organizations [8,9].

The implementation of sustainable practices is crucial for the promotion of sustainability in Portuguese SMEs. Sustainable practices involve ensuring that business operations do not harm the immediate environment, including land, water, and mineral resources [10]. The 1994 Copernicus Declaration emphasized the importance of sustainable development, and it is now a priority for many companies, including SMEs in Portugal [11]. A study by Lopes and Gomes [12] analysed the impact of sustainable strategic management in Portuguese companies and found that incorporating sustainable practices can lead to better business performance and overall success. Henriques and Catarino [13] found that implementing a methodology based on cleaner production and value analysis in Portuguese industrial companies assisted in developing sustainable products and services. A study by Félix et al. [14] assessed innovation through design in Portuguese manufacturing SMEs and found that incorporating sustainable design practices can lead to improved product quality and customer satisfaction. Furthermore, Farinha, Caeiro, and Azeiteiro [11] analysed sustainability strategies in Portuguese higher education institutions and highlighted the importance of commitments and practices from internal insights. Thus, developing sustainable products and services is a key strategy for promoting sustainability in Portuguese SMEs, as it leads to better business performance and overall success; therefore, its study is important.

In this context, the present study aims to analyze the implementation and management of sustainable innovation strategies in Portuguese SMEs inserted in the third sector of activity. In 2022, the employed population amounted to around 4.9 million, with 3.6 million (73%) of the population employed in the tertiary sector. As a result, measures were presented that companies may come to implement in their actions, involving the participation of their stakeholders. On the other hand, sustainability measures were identified in workplaces and in relation to quality of life that allow for increasing the prominence of the company.

This study is original not only because it is exclusive concerning SMEs, but also because it is the first to consider the context of Portuguese companies, thereby contributing to the existing literature on this subject.

2. Literature Review

2.1. Sustainability and Innovation

Sustainability and innovation are increasingly important in explaining the organizational environment. These factors are correlated in a normative and moral way and in strategic terms to increase competitiveness [7,15].

According to the Brundtland Commission Report, prepared by the United Nations in 2014, sustainability is a consistent evolution that meets the present without harming future generations, and it is adjusted to present needs. Over time, it has been increasingly emphasized that sustainability should cover three dimensions: changes in people's social, economic, and environmental lives. The discussion on sustainability involves Corporate Social Responsibility (CSR), presented by Rodriguez et al. [16] as a concept or idea that encompasses a greater variety of positive phenomena.

Innovation is considered the key determinant of a nation's competitiveness and firm performance. The Organisation for Economic Co-operation and Development (OECD) defines a country's competitiveness as the level at which a company can match market conditions to produce services and good products that meet the needs of international markets, while being able to maintain and expand people's real tastes and preferences over a long period [15]. Competitiveness can also be defined as the ability of a country or locality to maintain wellbeing [17]. In this way, sustainability, innovation, and competitiveness are

of great importance at the organizational level, affecting an organization's functioning, but also at a more macro level, as countries may or may not benefit from all the changes and actions inherent to these challenges [15].

2.1.1. Sustainability-Oriented Innovations (SOIs) in SMEs

Sustainability-oriented innovations (SOIs) are innovations developed with the aim of addressing sustainability challenges. SOIs can take many forms, including the introduction of new or improved products, services, or product-service systems that incorporate sustainability principles [18,19]. Their focus on long-term sustainability characterizes SOIs, as well as their consideration of social, environmental, and economic impacts and their integration of sustainability principles into the innovation process [19]. The concept of SOIs emphasizes that sustainability is not a fixed end point but a direction towards which innovation should be directed [20]. Therefore, SOIs require a shift in an organization's philosophy, values, products, and processes towards sustainability [21,22].

SOIs are particularly important for small and medium-sized enterprises (SMEs), as they can help these organizations achieve sustainable growth by addressing social and environmental issues [23]. Different types of SOIs and strategic sustainability behaviours are identified in SMEs, including eco-innovations, process innovations, and social innovations [23]. Eco-innovations involve the development of products or processes that reduce environmental impacts, while process innovations involve improving production processes to reduce waste and resource use. Social innovations, on the other hand, involve the development of products or services that address social issues, such as poverty and inequality [24,25].

Examples of SOIs in SMEs include developing sustainable packaging materials, using renewable energy sources, and implementing circular economy principles [18]. SOIs can also involve the development of new business models that promote sustainability, such as the sharing economy and collaborative consumption [26]. SMEs that adopt SOIs can benefit from increased competitiveness, improved reputation, and reduced costs [26]. Thus, SOIs are essential to addressing sustainability challenges, and they can offer SMEs opportunities for sustainable growth while addressing social and environmental issues [23,27].

2.1.2. Innovation Strategy

According to Tidd and Bessant [28], innovation can come radically or incrementally. Radical innovation predicts a high change in processes, products, or services. Incremental innovation, on the other hand, conceives of small improvements in existing processes, products, or services, improving the way of doing something that was already done before [28].

Regarding the types of innovation, they can be in the process or the product [29,30]. Process innovation can consist of moving out of an existing supply function, which can correspond to lower variable costs in the production of an existing service or product, thus generating an increase in productivity. A product innovation, on the other hand, concerns the creation of a new production function that encompasses the possibility of differentiating an existing product [29,30].

Innovation and, more specifically, technology infrastructure, have attracted growing interest in various political and socio-economic segments, involving decision makers, development agencies, entrepreneurs, and the academic community [31]. The focus of industrial and innovation policies has been changing from the exclusive use of direct support instruments to other, more indirect forms. To improve the competitive environment of enterprises, considerable efforts have been channeled into building and strengthening the technological infrastructure [32].

Considering industrial competitiveness as a result of national and, more recently, regional contexts, the appropriateness of policies designed for sustainability, such as industrial, science and technology, and other related policies, is debated. Such policies are usually focused on systems that, in turn, involve various institutions and mechanisms

that support and shape how innovation occurs in productive sectors and in society as a whole [33]. In this way, the aim is to strengthen the structural conditions for companies and industries to operate in an increasingly competitive global environment, which, from the point of view of companies, transcends the formation of prices but prioritizes, among other aspects, the ability to innovate [34].

Currently, the range of institutional actors involved in innovation activities and their support and evaluation is quite marked [35]. Among these actors can be highlighted companies, technological infrastructures, such as business incubators and science and technology parks, and public and private research institutes, centres, and universities, for which the generation, transfer, and use of knowledge and technology constitute fundamental activities or essential inputs for innovation [36].

However, it is important to emphasize that the mere implementation of technological infrastructures does not in itself constitute a success factor, either in business or sectoral terms or in national or regional terms. On the one hand, it should be borne in mind that the internal innovation processes of firms are not homogeneous, as they take various forms and make use of different sources of knowledge and information [37]. On the other hand, enterprises have their own characteristics, and their capacity to absorb and use new artefacts depends not only on the stage of development and knowledge already accumulated but also on the nature of technology in the productive sectors that affect them, as well as the ability to take advantage of development opportunities [38].

2.1.3. Sustainability Strategy

Sustainability cannot be assessed through just one corporate action [8]. Therefore, the creation of sustainable value, according to Hart and Sharma [39], requires companies to: (a) reduce levels of raw material consumption and pollution; (b) act with broader levels of transparency and accountability; (c) develop new technologies with the potential to reduce the human footprint on the planet; (d) meet the needs of people located at the lowest level of the global income pyramid; and (e) create and distribute income in a more inclusive manner.

Bieker [40] tells us about four types of sustainability strategies: the "credible" strategy; the "transformative" strategy; the "efficient" strategy; and the "innovative" strategy. The behaviour of the credible strategy and the efficient one is a reactive behaviour, whereas that of the transformative strategy and the innovative one is a proactive behaviour. According to their strategic orientation, the credible and the transformative strategies act in the public, unlike the efficient and innovative strategies, which act in the market [8,41].

According to Schaltegger et al. [42], strategies for sustainability can be classified as defensive, accommodative, and proactive (these are the ones that will be adopted in the present study). Regarding defensive strategic behavior, it refers to a reaction of companies that aims to avoid costs and restrictions, with managers dealing with sustainability issues in a reactive and restricted way. The main motivation of companies is not related to achieving competitive advantage through sustainable performance but is instead based on the need to comply with legislation to generate revenue and to protect the business. The accommodative strategy includes social and environmental objectives in most of the business processes and part of the products. However, these objectives are not related to revenue generation or the company's core business. Thus, this perspective considers some social and environmental objectives, such as occupational health and safety, eco-efficiency, and environmental protection. In the accommodative strategy, managers are willing to use management tools and systems for sustainability. Managers are aware that an organizational change is necessary, which implies some involvement and training of their employees. The proactive strategy incorporates social and environmental objectives into the company's business core to contribute to the sustainable development of society and the economy. Adopting this strategic posture, companies have their products and processes focused on sustainability, as well as the logic of creating business revenue based on these principles. Thus, the definition of costs and risks is modified to consider negative

externalities. With a proactive strategy, the company seeks to achieve its sustainability goals while aiming for market leadership through sustainable performance [42].

Companies are increasingly obliged to comply with sustainability standards and principles, which implies that it is necessary to adopt sustainable business strategies in order to ensure that resources are managed in such a way as to prevent their scarcity in the future and to minimize all environmental impacts arising from productive activities. Naturally, the responsibility of organizations is not only associated with the obligation to produce goods and services, to obtain profits, and to generate jobs, but also with the effects of their decisions and actions on the entire social system [7,8]. In this way, companies maximize their value while not only focusing on economic profit.

Sustainability is also seen as one of several components of the companies' strategies to build a reputation in the market. This commitment to sustainability present in the organizations' strategies has been growing and becoming indispensable to face the global economic crisis, which leads organizations to include environmental, social, and economic issues in their corporate strategies [9].

Developing these strategies brings about more pleasant work opportunities, consequently improving people's quality of life in general. Placet et al. [43] propose that the sustainability strategy should be customized for more specific situations as it is necessary to obtain more viable solutions that encompass the pillars of sustainability, thus requiring leaders to customize processes and products in a sustainable way in more specific regions and with the use of specific raw materials.

2.1.4. Sustainable Innovation Practices

According to Oliveira and Ipiranga [44], the articulation between innovation and sustainability presents some limitations. This is unlike environmental awareness, where some progression is observed, namely through the inclusion of environmental management in the decision-making process. The need to modify behaviours towards environmental awareness has become a significant concerns for certain areas, such as marketing and psychology [45].

According to Gonçalves-Dias, Teodósio, Carvalho, and Silva [45], environmental behaviour will have more impact with greater training, namely at the top management level of companies (training for company directors). This greater sensitivity to sustainable innovation practices will promote the emergence of new technologies in order to improve routine activities and will give rise to changes in products and processes, stimulating a greater interconnection between organizational innovations and the environment [46,47].

The Cleaner Production tool (CLP), which consists of suppressing, reducing, and reusing the waste created in the production process, is a source of sustainable innovation [44] that can improve the positioning of companies that incorporate this type of practice into their organization, unlike those that are limited to a status quo [46,48]. However, its implementation may be related to the companies' ability to comply with the principles of social responsibility [49]. CLP is directly related to a concept of continuous improvement, which aims to make production processes as sustainable as possible. Besides being based on sustainable innovation, it also represents a change in the way companies are managed [44]. CLP strategies are considered preventive in industrial processes by producing new products that allow progress through waste minimization [44]. CLP incorporates the soft and hard elements of technologies, such as management systems and equipment, respectively [49]. Following this strategy, Cleaner Technologies (TML) have appeared, which systematize the new vision through which technology contributes to planet sustainability, which can complement CLP [49,50].

The expression "the sixth wave of innovation" is used in the literature when it is intended to relate innovation and sustainability, thus fitting into the fifth wave information and communication technologies as organizations are progressively opting for more sustainable practices. Finally, sustainable practices should be implemented in the processes of

organizations to create "significant innovations for the business" because there has been a social obligation for their adoption [46,51].

2.2. Business Models and Corporate Performance

Business models can be defined as groups of elements that help create a consistent business. An innovative business model implies changes in these elements or a different combination so that they can enable the increase of the value created by the organization. This is an emerging topic due to social and market changes and the constant adaptation to different paradigms [52,53].

Every day, there are new advances related to innovative business models. It is necessary to promote collaboration between studies in this area to help share different knowledge to achieve more efficient work [54]. The origin of these models presented by DaSilva and Trkman [55] emerged from the will to innovate at the organizational level and to understand the most appropriate processes to increase productivity at the organizational level.

Some examples of new advances in business model innovations are: (1) subscription-based business models; (2) sharing economy models; and (3) platform-based business models.

Subscription-based business models have become increasingly popular in recent years, with some companies, such as Netflix and Spotify, leading the way. These companies have shifted from traditional pay-per-use models to subscription-based models, allowing for a more predictable revenue stream and increased customer loyalty. By offering a flat fee for unlimited access to their services, these companies have been able to attract and retain customers in a highly competitive market [56]. This innovative business model has proven to be successful, and it has been adopted by many other companies in various industries, including software, media, and e-commerce [57,58].

Sharing economy models, popularized by companies including Airbnb and Uber, have disrupted traditional industries by allowing individuals to share their assets (homes, cars) for profit. This innovative business model has created new revenue streams and business opportunities for both individuals and companies [59,60]. Airbnb, for example, has revolutionized the hospitality industry by allowing individuals to rent out their homes to travelers, while Uber has disrupted the taxi industry by allowing individuals to use their personal vehicles to transport passengers [61]. This innovative business model has also led to the creation of new industries, such as peer-to-peer car sharing and vacation rental management.

Platform-based business models, such as those used by Amazon and Alibaba, have created online platforms that connect buyers and sellers. These platforms allow for increased efficiency and a wider reach for both parties. Amazon, for example, has created a platform that allows sellers to reach a global audience, while Alibaba has created a platform that connects buyers and sellers in the Chinese market. This innovative business model has not only created new business opportunities but has also led to the growth of e-commerce and the digital economy [62–64].

3. Methodology

The aim of this study is to explore the role of sustainable management in Portuguese SMEs in the tertiary sector, using a qualitative methodology through a multiple case study. The need to apply a multiple case study is due to the fact that it aims to understand phenomena that are still little studied, it allows for analysis of a longitudinal change process, and, finally, because the subject under analysis does not yet have much empirical subsistence [65]. The qualitative methodology allows for interpretations to be drawn through empirical observation, enabling the capacity for sustainable management of companies to be understood in practice [66].

A semi-structured script was applied to nine Portuguese SMEs, and the questions applied were the same as in Kneipp [67]. The sampling of this study is not probabilistic by convenience because the companies involved in this study are from the central region of

Portugal. SMEs were studied because these companies have greater difficulties transitioning from their traditional business models into sustainable businesses and because SMEs are the typical size of Portuguese companies. Therefore, this is an exploratory study, and the results cannot be generalized to the Portuguese business world.

Many SMEs in the central region have faced serious financial problems in the last decade due to financial crises and the COVID-19 pandemic, thus accentuating the pertinence of this study. On the other hand, the central region of Portugal has been facing desertification problems for many years, as companies pay low wages and, therefore, have great difficulty recruiting highly qualified human resources. Thus, sustainable management can help the business fabric of these regions to be increasingly innovative and competitive. The interviews lasted an average of one hour and were carried out with the companies' CEOs.

In Figure 1, we elaborate on the data collection process.

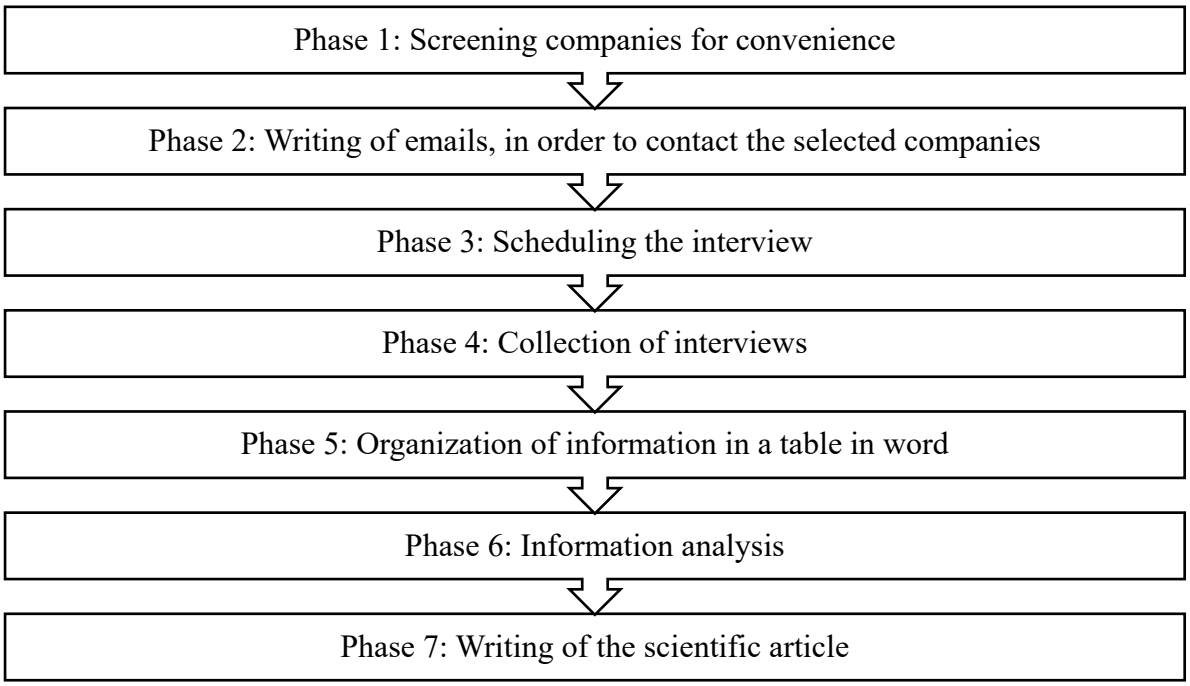

Figure 1. Data collection process.

Table 1 shows the main characteristics of the SMEs under study. In common are the companies' location (central zone of Portugal) and the fact that they are part of the tertiary sector. However, they are dedicated to different activities (insurance, construction, metallurgy, meat processing, car repair, software production, logistics, the fuel trade, and the elevators trade) and they employ different numbers of workers (from 4 to 480 workers).

Table 1. Characterization of the companies.

	Location	No. of Employees	What Do You Sell?	Position of the Interviewee	Date of Interview
Company A	Coimbra	6	Insurance	CEO	8 November 2020
Company B	Tentúgal	16	Railings, doors, gates, metal structures (pavilions), and industrial maintenance	CEO	12 November 2020
Company C	Leiria	45	Slaughtering, marketing, and processing of meat and meat by-products	CEO	7 November 2020

Table 1. *Cont.*

	Location	No. of Employees	What Do You Sell?	Position of the Interviewee	Date of Interview
Company D	Coimbra	60	Software	CEO	17 November 2020
Company E	Penela	10	Construction work: kitchens, doors, shelves, stairs, and wardrobes	CEO	14 November 2020
Company F	Coimbra	4	Car repair	CEO	17 November 2020
Company G	Guimarães	120	Fuel trade	Head of Accounting	22 May 2023
Company H	Lisboa	11	Logistics	CEO	23 May 2023
Company I	Porto	180	Elevators trade	CEO	24 May 2023

4. Results and Discussion

Recent studies consider that entrepreneurship works as the stimulus for sustainable development, with a view that innovation through entrepreneurship promotes a more sustainable future [68]. Entrepreneurship and sustainability are quite important and necessary for organizations to become more competitive [69]. There are also indicators that the best performing organizations have considerably innovative behaviour. Thus, to be able to advance in terms of sustainability, organizations need to be more entrepreneurial and incorporate sustainable factors in their results related to the life cycle of products, processes, and services.

4.1. Management of Sustainable Innovation

When developing strategic positioning for sustainable innovation, taking into account the type of innovation (product or process), degree of novelty (incremental and radical), and the level of sustainability (proactive, accommodative, and defensive), we observe that all companies have different positionings (Table 2). Thus, we perceive that five companies include the product as a type of innovation (companies B, C, E, H, and I) and that for the remaining companies, innovation corresponds to the process (companies A, D, F, and G). Regarding the degree of novelty, all companies considered themselves to have an incremental degree of novelty, and regarding the level of sustainability, only company D and F were understood to have a proactive level of sustainability, while the remaining companies are in the accommodative level. Thus, none of the companies in this study have a defensive level of sustainability.

The productivity of a company never depends only on its efficiency, as it is also continuously related to its strategic positioning. Productivity defines how a chain of coordinated processes can be maintained that allows profit to be made and that protects the business from destructive competition [70,71].

Regarding sustainable solutions to maximize society and the environment, all nine companies have sustainable solutions, but five of the companies (companies A, B, E, F, and I) produce products and/or services with lower resource use, namely through recycling. All companies recycle all the material they can, trying their best to re-use some products for other functions. Companies A and B recycle paper and plastic. Company E, for example, uses the wood leftovers for the boiler and heating of the varnish and lacquer finishing oven. Company G created a gas product for use of a main product, called green gas, which is less polluting. Company H seeks logistics solutions with low CO_2 production. At company I, around 96% of the waste generated by the company is recyclable (wood, paper and cardboard, scrap metal, and plastic), and, as such, this waste is used as raw material for other operating units, thus promoting a circular economy flow.

Table 2. Summary of responses regarding the management of sustainable innovation.

	Type of Innovation, Degree of Novelty, and Level of Sustainability	Sustainable Solutions to Maximize Society and Environment	Reduction of Resources in Order to Reduce Waste	Practices for Improving Energy Efficiency	Practices to Improve Water Efficiency	Transformation of Waste Streams	Substitution with Renewable and Natural Processes	Product Substitution by Processes (PSS)	Creating Sustainable Needs in Order to Change Lifestyles	Practices to Ensure the Wellbeing of Stakeholders	Production Systems and Suppliers to Obtain Environmental and Social Benefits
Company A	Process, incremental, and accommodating	Development of software that enables internal communication	Use of material resources and their total recycling	Use of low energy light bulbs	N/A	Paper recycling	N/A	N/A	Adjustment of communication with customers, digitally, to reduce all travel costs	Variable remuneration, such as birthday bonuses, for internal customers	N/A
Company B	Product, incremental, and accommodating	Recycling	N/A	Low consumption lamps, thermal and acoustic sandwich panel	N/A	Dismantles equipment for scrap or associations or re-uses it	N/A	N/A	Communication with customers and suppliers by e-mail	N/A	Renovated canteens and the roof to provide greater comfort for employees
Company C	Product, incremental, and accommodating	N/A	Data software in order to avoid paper costs	N/A	Boreholes for water catchment	By-product becomes biomass, and animal skins are sold	N/A	N/A	N/A	Training for employees and a place to rest	N/A
Company D	Process, incremental, and proactive	Professional internships	Recycling	They choose to use electronic media	N/A	N/A	Recycling of all products	N/A	N/A	Frequent meetings to improve interpersonal relations and processes between the company and stakeholders	N/A
Company E	Product, incremental, and accommodating	Separates waste, uses leftover wood	Wood scraps are re-used	By re-using leftover wood, energy is saved	N/A	Sale of waste wood and re-use of leftover wood	N/A	In the renovation of a space, there are products produced and others that it does not produce and only installs	N/A	Good dialogue and a good relationship with stakeholders	N/A

Table 2. *Cont.*

	Type of Innovation, Degree of Novelty, and Level of Sustainability	Sustainable Solutions to Maximize Society and Environment	Reduction of Resources in Order to Reduce Waste	Practices for Improving Energy Efficiency	Practices to Improve Water Efficiency	Transformation of Waste Streams	Substitution with Renewable and Natural Processes	Product Substitution by Processes (PSS)	Creating Sustainable Needs in Order to Change Lifestyles	Practices to Ensure the Wellbeing of Stakeholders	Production Systems and Suppliers to Obtain Environmental and Social Benefits
Company F	Proactive	Recycling	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Company G	Product, incremental, and accommodating	Recycling	N/A	Low consumption lamps	N/A	Transforming waste streams into green gas	Green gas	N/A	N/A	Promotion of visits to several industrial units and discussion forums and satisfaction questionnaires	Protocols with local authorities
Company H	Product, incremental, and accommodating	Recycling	N/A	Low consumption lamps	N/A	N/A	N/A	N/A	Communication with customers and suppliers by e-mail	N/A	N/A
Company I	Product, incremental, and accommodating	Recycling (wood, paper and cardboard, scrap metal, plastic)	N/A	Low consumption lamps, photovoltaic panels	Faucets with a timer system in the installation, plans audits to detect possible water leaks, and reduces the renewal cycles of the baths used in elevator production	Waste (wood, paper and cardboard, scrap metal, plastic) is used as raw material for other operating units	Elevators powered by solar panels and small wind turbines. Energy generated by the elevators during the braking phase is used and inserted into the building's energy supply network	N/A	Actively collaborates with business and engineering colleges to develop new business models and new services as a result of an aging population	Defines code of conduct and leadership and conducts periodic questionnaires to assess the satisfaction and quality of management	N/A

It should be noted that the CLP instrument implies that the waste created is eliminated, reduced, and/or re-used, resulting in a source of sustainable innovation [44]. Therefore, this instrument can help companies improve their positioning towards sustainability [46,48]. These behaviours are directly associated with companies' compliance with social responsibility standards [44,49].

With regard to practices to improve energy efficiency, seven companies (companies A, B, C, E, G, H, and I) use them, namely through the use of low consumption light bulbs, the use of sandwich panels to improve the thermal and acoustic environment, and the use of production waste (wood leftovers) for thermal heating. Company I also installed photovoltaic systems for heating sanitary water. Concerning water efficiency, company C has boreholes for capturing underground water, which is important for supply chain emissions. Company I has faucets with a timer system in the installations, which carries out planned audits to detect possible water leaks, and it has reduced the renewal cycles of the baths used for degreasing and washing the elevator plates, which must be carried out before painting of the same.

The elimination of "waste" based on the transformation of waste streams is practiced by all companies, except for companies D and F. This waste transformation focuses on the recycling of paper (company A) and equipment (company B), the transformation into biomass and the sale of hides for the textile industry (company C), as well as the sale and re-use of wood leftovers (company E). Company I created a new series of elevator doors that eliminated three stages of the production process used in the previous model of doors (welding, painting, and packaging) and reduced the use of resources by about 35%, together with an improvement in the resistance, durability, and reliability of this component. This company also proceeds with the optimization of the cutting planes of the plate to reduce the scrap generated.

In a world so marked by climate change, providing an environmentally friendly economy is critical [72–74]. This requires the replacement of traditional processes with more sustainable ones and also the replacement of products with sustainable ones. Only one (company I) of the interviewed companies replaces traditional processes with renewable and/or natural processes, and no company replaces products with sustainable processes. In company I, prototypes of elevators powered by solar panels and small wind turbines were developed and installed, with their industrialization only conditioned to the reduction of the cost value and the increase in the longevity of the battery systems essential for proper functioning. Other products already in the marketing and installation phase allow, for example, the energy generated by the elevators during the braking phase to be used and inserted into the building's energy supply network instead of dissipating through thermal resistance.

With regard to actions for creating and projecting sustainable needs that can change current lifestyles and develop services, products, and business models, only companies A and B put these actions into practice, namely by changing communication with customers and suppliers to digital means (companies A, B, and I) and reducing physical visits to customers (company A). Company I is attentive to the phenomenon of population concentration in cities and the greater aging of the population, which opens up interesting windows of opportunity for the company in the development of new business models, products, and services because it sells elevators.

Regarding practices to ensure the wellbeing of stakeholders, only company F chooses not to carry them out. The main practices carried out by the other companies focus on promoting the wellbeing of employees: variable remuneration, birthday bonuses, training, a specific place for workers to rest, follow-up meetings, promotion of visits to several industrial units and discussion forums, and satisfaction questionnaires. Company I has a well-defined code of conduct and leadership and conducts periodic questionnaires to assess the satisfaction and quality of management. As for the production systems and suppliers selected to promote environmental and social benefits, only company B provided a social benefit to employees with the renovation of the canteen and roofs. Company G has

protocols with local authorities to provide discounts on fuel in public transport vehicles and in vehicles used by firefighters.

4.2. Business Model

Regarding the business model, the answers obtained are summarized in Table 3.

Regarding the companies' value propositions and how these are linked to economic, social, and environmental criteria, we observe that in all companies, with the exception of company F, the value proposition is related to internal and external social criteria. Companies A, B, C, and E put more emphasis on creating or improving the skills of their workers (internal social criterion), occasionally providing different training modules to their workers. On the other hand, as far as company D is concerned, the value proposition is related to external social criteria, namely in the granting of donations to orphanages and other solidarity institutions. In company F, the value proposition relates to environmental criteria, namely recycling activities. Finally, company I intends to adopt a higher level of servitization, and, as such, the company's value proposition must necessarily integrate sustainability issues into its business model.

With regard to the involvement of suppliers in sustainable supply chain management, companies A, B, E, F, and I recognize the importance of these stakeholders in the sustainability of their supply chain. In the case of companies focused on the production/sale of goods, they emphasize the importance of communication with their suppliers in order to speed up the delivery of materials and maximize the amount of raw material delivered in a single supply, as they are concerned that suppliers make as few trips as possible, with savings in economic and environmental costs. Moreover, in certain cases, these companies also promote the contact of suppliers directly with clients in order to reduce the response time and more travel than necessary. On the other hand, the economic sustainability of the supply chain is also guaranteed, in the case of company F, by negotiating forms of payment that are more adjusted to the company's cash flow needs. In company I, the involvement of suppliers often begins in the product/service development phase. This results in medium/long-term partnership relationships of mutual benefit and information sharing, usually formalized in supply agreements and quality agreements.

Concerning the relationship with customers in the business model, company C mentions that this relationship is increasingly navigated through digital means (emails and telephone, for example), while, on the other hand, companies A and B note that their customers contact suppliers directly.

It is becoming more and more usual in the business area to be required to adopt certain behaviours regarding the environment; therefore, it is essential to apply more sustainable procedures to decrease impacts on the environment. Thus, organizations are not only concerned with providing goods and services and achieving profit, but also with the consequences that arise from this [7,8,75]. As to the distribution of economic costs and benefits among the company's stakeholders, companies A, B, C, and G observe that, in their financial models, they only consider employees as stakeholders. This distribution of costs and benefits tends to be equitable and proportional to the performance of employees. Company I has a financial model that allows the sharing of economic benefits by all employees at all levels. This is achieved through bonus systems, systems for suggesting improvements, and, in specific functions, through remuneration based on results. The remaining companies mentioned that they did not consider the costs and benefits of stakeholders in their financial models.

Table 3. Summary of responses regarding the business model.

	How the Company's Value Proposition Is Related to Economic, Social, and Environmental Criteria	Involvement of Suppliers in Sustainable Supply Chain Management	Customer Relations	Does the Financial Model Have a Distribution of Economic Costs and Benefits among the Company's Stakeholders?	How the Financial Model Is Responsible for Ecological and Social Impacts
Company A	Concern with valuing workers by providing training modules	Transmission of information from customers to suppliers	Transmission of information from customers to suppliers	Balance of costs and benefits according to stakeholder	Compensates stakeholders well in order to have a good social framework
Company B	Employee training	Orders several products or tells the supplier to deliver the order when they have other orders destined for the area where the company is located	With long-standing customers, gives the option to go straight to the supplier to avoid the time and travel of suppliers	Remuneration is distributed equitably according to the function of the employees	Improvements to company facilities
Company C	Training offer	N/A	Communication with customers via phone call or email to avoid the use of paper	Deserving workers are rewarded with benefits	Efficient and fair remuneration of stakeholders
Company D	Provides a large number of donations to orphanages and other institutions	N/A	N/A	N/A	Reduces the costs of perishable goods
Company E	All necessary attention is given to the workers	Obtains only the material needed for the projects in order to avoid waste	N/A	N/A	Not answered
Company F	Recycling and supporting local activities	Negotiates forms of payment that are beneficial to the company	N/A	N/A	Not answered
Company G	Not answered	Possibility of investment in the company by suppliers	Customer loyalty	Distributes, annually, part of the profits among the employees	The financial model mainly has an impact on social measures (distribution of profits among employees)
Company H	Customer value creation	N/A	Protocols with public entities	N/A	Sees no relationship

Table 3. *Cont.*

	How the Company's Value Proposition Is Related to Economic, Social, and Environmental Criteria	Involvement of Suppliers in Sustainable Supply Chain Management	Customer Relations	Does the Financial Model Have a Distribution of Economic Costs and Benefits among the Company's Stakeholders?	How the Financial Model Is Responsible for Ecological and Social Impacts
Company I	Not answered	The involvement of suppliers often begins in the product/service development phase	N/A	The financial model allows the sharing of social benefits by all employees, at all levels. This is achieved by reward systems, improvement suggestion systems, and, in specific roles, remuneration based on results	Efficient and fair remuneration of employees

With regard to how the financial model may or may not be responsible for ecological and social impacts, companies E, F, G, and H feel that this model neither influences nor is responsible for these impacts. However, companies A and C state that it is possible through a good relationship with stakeholders and their remuneration. Company B states that it is through improvements in the companies' facilities, and company D strives to reduce the costs of perishable goods. In company I, the financial model allows the sharing of social benefits by all employees at all levels. This is achieved through reward systems, improvement suggestion systems, and, in specific roles, remuneration based on results.

Certain concepts, such as sustainable development, have become commonplace, thereby influencing companies to respect the environment and contribute to greater justice and equity [1,2]. In this way, the relations between sustainability (corporate social responsibility) and competitiveness have been deepened both through a normative and a strategic approach [7,16,75].

Thus, the link between satisfaction, sustainable organizational growth, and success is effectively influenced by a company's connection with its stakeholders, leading to better performance at the business level and greater social impact, ultimately creating value for its stakeholders [15].

5. Conclusions

This study aims to analyze the implementation and management of innovative sustainability strategies in Portuguese SMEs in the tertiary sector. Regarding the management of sustainable innovation, we assessed the interviewed companies as having accommodative and proactive strategies. Products and processes are the main sources of innovation. All companies present sustainable solutions to maximize their value in society and the environment, namely through recycling and re-using waste using Low-Cost Modern Practices (LMPs) instruments. On the other hand, some companies already have best practices in terms of energy efficiency (energy saving and use of clean energy), water (local water capture), and waste disposal through transformation and re-use. They also take sustainable actions at the level of digital communication with customers and suppliers and promote practices to promote the wellbeing of their workers.

The business model of the Portuguese SMEs interviewed is mostly based on economic and social criteria internally (focused on employees) and externally (focused on creating value for other institutions). Suppliers are recognized as having an essential role in supply chain management, and the relationship with customers is increasingly digital and carried out directly through suppliers. The companies revealed that they apply more sustainable procedures to reduce the consequences on the environment and that in their financial model, they essentially consider the workers.

The analysis carried out regarding the implementation of sustainability strategies is positive because it was concluded that these companies present some measures and practices in search of sustainable solutions, which bring benefits to the environment and the whole society. Although all companies present a satisfactory sustainability level, we can also conclude that there are always practices that could be improved, but the financial budget of the companies does not allow it. In addition, recently, the COVID-19 pandemic forced most businesses to close their doors and forced people to remain isolated in their homes.

This study is original not only because it is exclusive concerning SMEs, but also because it is the first to consider the context of Portuguese companies, contributing to the development of the existing literature on this subject.

Regarding the theoretical implications, this study contributes to the scarce literature on the subject through a study of multiple cases of Portuguese SME companies. As for the practical implications, it can be said that, in general, all companies have several aspects in common that can be improved, such as: reducing the use of electricity and improving energy efficiency (for example, by installing solar panels on company buildings); improving water efficiency (for example, by having a green roof, efficient devices and products, and hot water circulation and return); recycling properly and encouraging all employees to

do so with due attention; and avoiding, as much as possible, the waste of materials. To improve the sustainable development of companies, it is also suggested that companies examine the possibility of implementing employee wellness programs and their impact on company performance. Companies should examine and consider collaboration and partnership between companies and other stakeholders, such as governments and non-profit organizations, to jointly promote sustainability practices. Companies and policymakers should analyse the impact of sustainable practices on the environment, society, and the overall value they generate. Businesses should also be encouraged to adopt digital communication practices with customers and suppliers that are sustainable and environmentally friendly. Policymakers should encourage SMEs to consider implementing more and more social and environmental criteria in addition to economic criteria in their business models.

In general, steps for companies to implement and improve their sustainable development may involve the following initiatives: (1) Assess the current situation: companies need to assess the current level of sustainability of their operations, identify areas for improvement, and set clear targets for sustainable development; (2) Develop a sustainability policy: companies need to develop and implement sustainability policies that set out the company's expectations, the goals to be achieved, and the responsibilities of each department or employee; (3) Education and awareness-raising: companies need to educate their employees about sustainable corporate practices and engage them in implementing the sustainability policy; (4) Identify opportunities for improvement: companies should evaluate their operations to identify areas of improvement and opportunities to implement sustainable changes; (5) Implement sustainable solutions: companies should implement sustainable solutions, such as efficient energy use, reduction of greenhouse gas emissions, and efficient waste and water management, among other solutions; and finally (6) Monitor and report progress: companies should regularly monitor and report their progress towards sustainable development, thereby providing transparency and accountability to stakeholders.

One of the limitations of this study is the fact that only nine companies were interviewed, which were selected for convenience, and the results cannot be generalized to the Portuguese business universe. Furthermore, the companies have different sizes as measured by the number of employees and different activities within the tertiary sector. It would be interesting in future studies to expand the sample of companies and to categorize companies by size and activities. Exploring the role of business leadership in implementing sustainable innovation management measures could be interesting and would allow us to obtain results in which ways business leadership is a booster or inhibitor of implementing these measures. Furthermore, this study uses a qualitative methodology. The collection of quantitative data from these companies through a questionnaire could complement and substantiate the results obtained.

Regarding future lines of research, it is suggested to expand the number of companies and to include companies more diversified in terms of size, as well as to understand how they contribute to environmental, economic, and social sustainability. Possible studies could also be conducted to understand how each company's budget impacts the level of sustainability and the assessment of employees regarding sustainable practices of the companies where they work.

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References

1. Rendtorff, J.D. Sustainable Development Goals and progressive business models for economic transformation. *Local Econ.* **2019**, *34*, 510–524. [CrossRef]
2. Sachs, J.D. From Millennium Development Goals to Sustainable Development Goals. *Lancet* **2012**, *379*, 2206–2211. [CrossRef] [PubMed]
3. Carter, C.R. Purchasing social responsibility and firm performance. *Int. J. Phys. Distrib. Logist. Manag.* **2005**, *35*, 177–194. [CrossRef]
4. Broman, G.I.; Robèrt, K.-H. A framework for strategic sustainable development. *J. Clean. Prod.* **2017**, *140*, 17–31. [CrossRef]
5. Bratt, C.; Sroufe, R.; Broman, G. Implementing Strategic Sustainable Supply Chain Management. *Sustainability* **2021**, *13*, 8132. [CrossRef]
6. Oelze, N.; Hoejmose, S.U.; Habisch, A.; Millington, A. Sustainable Development in Supply Chain Management: The Role of Organizational Learning for Policy Implementation. *Bus. Strategy Environ.* **2016**, *25*, 241–260. [CrossRef]
7. Schwartz, M.S.; Carroll, A.B. Corporate Social Responsibility: A Three-Domain Approach. *Bus. Ethics Q.* **2015**, *13*, 503–530. [CrossRef]
8. Palma, E.P.; Gomes, C.M.; Kneipp, J.M.; Rosa, L.A.B.d. Sustainable Strategies and Export Performance: An analysis of companies in the gems and jewelry industry. *Rev. Bras. Gestão Negócios* **2014**, *16*, 25–42. [CrossRef]
9. Lacy, P.; Hayward, R. A new era of sustainability in emerging markets? Insights from a global CEO study by the United Nations Global Compact and Accenture. *Corp. Gov. Int. J. Bus. Soc.* **2011**, *11*, 348–357. [CrossRef]
10. Mahameed, M.; Riaz, U.; Aldoob, M.S.; Halari, A. The implementation of sustainability practices in Arab higher education institutions. *J. Financ. Report. Account.* **2023**. *ahead-of-print*. [CrossRef]
11. Farinha, C.; Caeiro, S.; Azeiteiro, U. Sustainability Strategies in Portuguese Higher Education Institutions: Commitments and Practices from Internal Insights. *Sustainability* **2019**, *11*, 3227. [CrossRef]
12. Lopes, J.M.; Gomes, S. Innovative and Sustainable Business Strategies: The Case of Portuguese SMEs. *IBIMA Bus. Rev.* **2022**, *2022*, 714613. [CrossRef]
13. Henriques, J.; Catarino, J. Sustainable Value and Cleaner Production—Research and application in 19 Portuguese SME. *J. Clean. Prod.* **2015**, *96*, 379–386. [CrossRef]
14. Félix, M.J.; Gonçalves, S.; Jimenez, G.; Santos, G. The Contribution of Design to the Development of Products and Manufacturing Processes in the Portuguese Industry. *Procedia Manuf.* **2019**, *41*, 1055–1062. [CrossRef]
15. Fonseca, L.M.; Lima, V.M. Countries three wise men: Sustainability, Innovation, and Competitiveness. *J. Ind. Eng. Manag.* **2015**, *8*, 15. [CrossRef]
16. Rodriguez, M.D.M.; Gallego, A.C.; Perez, B.E. Corporate social responsibility and financial performance: A meta-analysis. *Span. J. Financ. Accoun.* **2014**, *43*, 193–215. [CrossRef]
17. Aiginger, K. Competitiveness: From a Dangerous Obsession to a Welfare Creating Ability with Positive Externalities. *J. Ind. Compet. Trade* **2006**, *6*, 161–177. [CrossRef]
18. Adams, R.; Jeanrenaud, S.; Bessant, J.; Denyer, D.; Overy, P. Sustainability-oriented Innovation: A Systematic Review. *Int. J. Manag. Rev.* **2016**, *18*, 180–205. [CrossRef]
19. Wilkerson, B.; Trellevik, L.-K.L. Sustainability-oriented innovation: Improving problem definition through combined design thinking and systems mapping approaches. *Think. Ski. Creat.* **2021**, *42*, 100932. [CrossRef]
20. Hansen, E.G.; Große-Dunker, F. Sustainability-Oriented Innovation. In *Encyclopedia of Corporate Social Responsibility*; Idowu, S.O., Capaldi, N., Zu, L., Gupta, A.D., Eds.; Springer: Berlin/Heidelberg, Germany, 2013; pp. 2407–2417.
21. Bennett, N.J.; Blythe, J.; Cisneros-Montemayor, A.M.; Singh, G.G.; Sumaila, U.R. Just Transformations to Sustainability. *Sustainability* **2019**, *11*, 3881. [CrossRef]
22. Shrivastava, P.; Stafford Smith, M.; O'Brien, K.; Zsolnai, L. Transforming Sustainability Science to Generate Positive Social and Environmental Change Globally. *One Earth* **2020**, *2*, 329–340. [CrossRef] [PubMed]
23. Klewitz, J.; Hansen, E.G. Sustainability-oriented innovation of SMEs: A systematic review. *J. Clean. Prod.* **2014**, *65*, 57–75. [CrossRef]
24. Carrillo-Hermosilla, J.; del Río, P.; Könnölä, T. Diversity of eco-innovations: Reflections from selected case studies. *J. Clean. Prod.* **2010**, *18*, 1073–1083. [CrossRef]
25. Xavier, A.F.; Naveiro, R.M.; Aoussat, A.; Reyes, T. Systematic literature review of eco-innovation models: Opportunities and recommendations for future research. *J. Clean. Prod.* **2017**, *149*, 1278–1302. [CrossRef]
26. González-Álvarez, N.; Cabeza-García, L. Introduction to Special Issue "Advances in Sustainability-Oriented Innovations". *Sustainability* **2020**, *12*, 8836. [CrossRef]
27. Jarmai, K. Learning from Sustainability-Oriented Innovation. In *Responsible Innovation: Business Opportunities and Strategies for Implementation*; Jarmai, K., Ed.; Springer: Dordrecht, The Netherlands, 2020; pp. 19–35.

28. Tidd, J.; Bessant, J.R. *Managing Innovation: Integrating Technological, Market and Organizational Change*, 7th ed.; John Wiley & Sons: Chichester, UK, 2020.
29. Cohen, W.M.; Klepper, S. Firm size and the nature of innovation within industries: The case of process and product R&D. *Rev. Econ. Stat.* **1996**, *78*, 232–243. [CrossRef]
30. Koellinger, P. The relationship between technology, innovation, and firm performance—Empirical evidence from e-business in Europe. *Res. Policy* **2008**, *37*, 1317–1328. [CrossRef]
31. Aydalot, P.; Keeble, D. *High Technology Industry and Innovative Environments: The European Experience*; Taylor and Francis: Abingdon, UK, 2018; pp. 1–241.
32. Dorfman, N.S. Route 128: The development of a regional high technology economy. *Res. Policy* **1983**, *12*, 299–316. [CrossRef]
33. Figueiredo, P.N. Aprendizagem Tecnológica e Inovação Industrial em Economias Emergentes: Uma Breve Contribuição para o Desenho e Implementação de Estudos Empíricos e Estratégias no Brasil. *Rev. Bras. Inovação* **2009**, *3*, 323–361. [CrossRef]
34. Lopes, J.M.; Gomes, S.; Oliveira, J.; Oliveira, M. International Open Innovation Strategies of Firms in European Peripheral Regions. *J. Open Innov. Technol. Mark. Complex.* **2022**, *8*, 7. [CrossRef]
35. Massey, D.; Quintas, P.; Wield, D. *High-Tech Fantasies: Science Parks in Society, Science and Space*; Routledge: Abingdon, UK, 2003; pp. 1–268.
36. Lundvall, B.A.; Johnson, B.; Andersen, E.S.; Dalum, B. National systems of production, innovation and competence building. *Res. Policy* **2002**, *31*, 213–231. [CrossRef]
37. Lopes, J.; Oliveira, M.; Silveira, P.; Farinha, L.; Oliveira, J. Business Dynamism and Innovation Capacity, an Entrepreneurship Worldwide Perspective. *J. Open Innov. Technol. Mark. Complex.* **2021**, *7*, 94. [CrossRef]
38. Padua, M. Learning and knowledge management in the firm: From knowledge accumulation to strategic capabilities. New horizons in the economics of innovation. *J. Evol. Econ.* **2004**, *14*, U492–U496. [CrossRef]
39. Hart, S.L.; Sharma, S. Engaging fringe stakeholders for competitive imagination. *IEEE Eng. Manag. Rev.* **2004**, *32*, 28. [CrossRef]
40. Bieker, T. Sustainability management with the Balanced Scorecard. In *Proceedings of the International Summer Academy of Technology Studies*; Corporate Sustainability: Graz, Austria, 2003; pp. 1–7.
41. Travaille, D.; Naro, G. Management control facing the challenges of overall performance A study carried out with management controllers. *Soc. Bus. Rev.* **2017**, *12*, 175–199. [CrossRef]
42. Schaltegger, S.; Lüdeke-Freund, F.; Hansen, E.G. Business cases for sustainability: The role of business model innovation for corporate sustainability. *Int. J. Innov. Sustain. Dev.* **2012**, *6*, 95–119. [CrossRef]
43. Placet, M.; Anderson, R.; Fowler, K.M. Strategies for Sustainability. *Res.-Technol. Manag.* **2005**, *48*, 32–41. [CrossRef]
44. Oliveira, L.G.L.; Ipiranga, A.S.R. Evidences of the sustainable innovation in the cashew agribusiness context in Ceará-Brazil. *RAM Rev. Adm. Mackenzie* **2011**, *12*, 122–150. [CrossRef]
45. Gonçalves-Dias, S.L.F.; Teodósio, A.d.S.d.S.; Carvalho, S.; Silva, H.M.R.d. Environmental awareness: An exploratory study into the implications for teaching business administration. *RAE Eletrônica* **2009**, *8*, 1–22. [CrossRef]
46. Calazans, L.B.B.; Silva, G. Process Innovation: An Analysis in Companies with Sustainable Practices. *Rev. Gestão Ambient. Sustentabilidade* **2016**, *5*, 115–129. [CrossRef]
47. Bengtsson, F.; Ågerfalk, P.J. Information technology as a change actant in sustainability innovation: Insights from Uppsala. *J. Strateg. Inf. Syst.* **2011**, *20*, 96–112. [CrossRef]
48. Nidumolu, R.; Prahalad, C.K.; Rangaswami, M.R. Why sustainability is now the key driver of innovation. *Harv. Bus. Rev.* **2009**, *87*, 56–64.
49. Lemos, Â.D.; Nascimento, L.F. A produção mais limpa como geradora de inovação e competitividade. *Rev. Adm. Contemp.* **1999**, *3*, 23–46. [CrossRef]
50. Wyk, R.J. The corporate board and the challenge of technology. *Int. J. Technol. Manag.* **1996**, *11*, 470–478. [CrossRef]
51. Seebode, D.; Jeanrenaud, S.; Bessant, J. Managing innovation for sustainability. *RD Manag.* **2012**, *42*, 195–206. [CrossRef]
52. Amit, R.; Zott, C. Creating Value through Business Model Innovation. *Mit Sloan Manag. Rev.* **2012**, *53*, 41–49.
53. Zott, C.; Amit, R.; Massa, L. The Business Model: Recent Developments and Future Research. *J. Manag.* **2011**, *37*, 1019–1042. [CrossRef]
54. Basile, A.; Faraci, R. Aligning management model and business model in the management innovation perspective The role of managerial dynamic capabilities in the organizational change. *J. Organ. Chang. Manag.* **2015**, *28*, 43–58. [CrossRef]
55. DaSilva, C.M.; Trkman, P. Business Model: What It Is and What It Is Not. *Long Range Plan.* **2014**, *47*, 379–389. [CrossRef]
56. Kavadias, S.; Kostas, L.; Loch, C. The Transformative Business Model. Available online: https://hbr.org/2016/10/the-transformative-business-model (accessed on 31 May 2023).
57. Punj, G. The relationship between consumer characteristics and willingness to pay for general online content: Implications for content providers considering subscription-based business models. *Mark. Lett.* **2015**, *26*, 175–186. [CrossRef]
58. Arioli, V.; Sala, R.; Pirola, F.; Pezzotta, G. Subscription Business Models in the Manufacturing Field: Evidence from a Case Study. In *Advances in Production Management Systems. Smart Manufacturing and Logistics Systems: Turning Ideas into Action. APMS 2022. IFIP Advances in Information and Communication Technology*; Springer: Cham, Switzerland, 2022; pp. 359–366. [CrossRef]
59. Sundararajan, A. From Zipcar to the sharing economy. *Harv. Bus. Rev.* **2013**, *1*, 1–2.
60. Hossain, M. Sharing economy: A comprehensive literature review. *Int. J. Hosp. Manag.* **2020**, *87*, 102470. [CrossRef]

61. Am, J.B.; Furstenthal, L.; Jorge, F.; Roth, E. *Innovation in a Crisis: Why It Is More Critical than Ever*; McKinsey & Company: New York, NY, USA, 2020; pp. 1–11.
62. Täuscher, K.; Laudien, S.M. Understanding platform business models: A mixed methods study of marketplaces. *Eur. Manag. J.* **2018**, *36*, 319–329. [CrossRef]
63. Xu, Y.; Ahokangas, P.; Turunen, M.; Mäntymäki, M.; Heikkilä, J. Platform-Based Business Models: Insights from an Emerging AI-Enabled Smart Building Ecosystem. *Electronics* **2019**, *8*, 1150. [CrossRef]
64. Rachinger, M.; Rauter, R.; Müller, C.; Vorraber, W.; Schirgi, E. Digitalization and its influence on business model innovation. *J. Manuf. Technol. Manag.* **2019**, *30*, 1143–1160. [CrossRef]
65. Rua, O.M.L. The importance of qualitative methodology in management empirical research. *INBAM-Int. Netw. Bus. Manag. J.* **2013**, *68*, 1–7.
66. Ferreira, C.; Cardoso, C.; Travassos, M.; Paiva, M.; Pestana, M.; Lopes, J.M.; Oliveira, M. Disorders, Vulnerabilities and Resilience in the Supply Chain in Pandemic Times. *Logistics* **2021**, *5*, 48. [CrossRef]
67. Kneipp, J.M. *Gestão Estratégica da Inovação Sustentável e sua Relação com o Modelo de Negócios e o Desempenho Empresarial*; Universidade Federal de Santa Maria: Santa Maria, Brazil, 2016.
68. Pacheco, D.F.; Dean, T.J.; Payne, D.S. Escaping the green prison: Entrepreneurship and the creation of opportunities for sustainable development. *J. Bus. Ventur.* **2010**, *25*, 464–480. [CrossRef]
69. Gomes, C.M.; Kruglianskas, I.; Scherer, F.L. Management of external sources of information: An analysis of factors influencing the innovation performance. *Gestão Produção* **2011**, *18*, 897–910. [CrossRef]
70. Cobra, R.; Sanvezzo, P.; Branciforti, M.; Mascarenhas, J. Circular Technology Roadmapping (TRM): Fostering Sustainable Material Development. *Sustainability* **2021**, *13*, 7036. [CrossRef]
71. Dasen, J.S.; Tice, B.C.; Brenner-Morton, S.; Jessell, T.M. A Hox Regulatory Network Establishes Motor Neuron Pool Identity and Target-Muscle Connectivity. *Cell* **2005**, *123*, 477–491. [CrossRef] [PubMed]
72. Abad-Segura, E.; Batlles-delaFuente, A.; González-Zamar, M.-D.; Belmonte-Ureña, L.J. Implications for Sustainability of the Joint Application of Bioeconomy and Circular Economy: A Worldwide Trend Study. *Sustainability* **2021**, *13*, 7182. [CrossRef]
73. Khoshnevisan, B.; Tabatabaei, M.; Tsapekos, P.; Rafiee, S.; Aghbashlo, M.; Lindeneg, S.; Angelidaki, I. Environmental life cycle assessment of different biorefinery platforms valorizing municipal solid waste to bioenergy, microbial protein, lactic and succinic acid. *Renew. Sustain. Energy Rev.* **2020**, *117*, 109493. [CrossRef]
74. Greyson, J. An economic instrument for zero waste, economic growth and sustainability. *J. Clean. Prod.* **2007**, *15*, 1382–1390. [CrossRef]
75. Carroll, A.B. Corporate social responsibility: Evolution of a definitional construct. *Bus. Soc.* **1999**, *38*, 268–295. [CrossRef]