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Universidade de Lisboa

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MANAGEMENT AND INDUSTRIAL STRATEGY

MASTER´S FINAL WORK

DISSERTATION

THE INFLUENCE OF SUSTAINABILITY PRACTICES IN SUPPLIER PORTFOLIO: A CASE STUDY

MARGARIDA JOSÉ SOUSA ABREU

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SUPERVISION:
PROFESSOR DOCTOR JOSÉ NOVAIS SANTOS

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ABSTRACT

Nowadays, our society has become more educated and interested in all issues and challenges related to environmental sustainability. Compared to a few years ago, it is possible to observe a great improvement and concern from companies to adopt measures that will provide and guarantee a more ecological functioning of their activities. With growing governmental and social pressure, companies are preforming daily activities in a more sustainable way, while maintaining their products quality.

The influence of sustainability practices on supplier portfolios is a growing area of research. Companies are increasingly recognizing the importance of working with sustainable suppliers to reduce their own environmental impact and contribute to a more sustainable economy.

This thesis presents a case study of how one company, ECM, has implemented sustainability practices in its supplier portfolio. ECM is a beer company that is committed to sustainability. The company has a few sustainability goals, including reducing its greenhouse gas emissions, water consumption, and waste generation.

With the aim of ensuring the sustainability of its production process and supply chain, it is relevant for companies to work together with their suppliers demonstrating concern for the environment and sharing a sustainable strategy. This study intends to study the influence of sustainable solutions in the supplier portfolio of companies.

For that, the qualitative method was used combining secondary data with an interview with an Empresa de Cervejas da Madeira employee, representing the Sustainability Department.

Keywords: Sustainability, Supply Chain Portfolio, Corporate Social Responsibility.

RESUMO

Atualmente, a nossa sociedade tem vindo a tornar-se mais instruída e interessada em todas as questões e desafios relacionados com a sustentabilidade ambiental. Em comparação com alguns anos atrás, é possível observar uma grande melhoria e preocupação das empresas em adotar medidas que proporcionem e garantam um funcionamento mais ecológico das suas atividades. Com a crescente pressão governamental e social, as empresas estão a realizar as suas atividades diárias de uma forma mais sustentável, mantendo a qualidade dos seus produtos.

A influência das práticas de sustentabilidade nas carteiras de fornecedores é uma área de investigação em crescimento. As empresas reconhecem cada vez mais a importância de trabalhar com fornecedores sustentáveis para reduzir o seu impacto ambiental e contribuir para uma economia mais sustentável.

Esta tese apresenta um estudo de caso sobre a forma como uma empresa, a ECM, implementou práticas de sustentabilidade na sua carteira de fornecedores. A ECM é uma empresa de cervejas que está empenhada na sustentabilidade, cujos objetivos de sustentabilidade são a redução das suas emissões de gases com efeito de estufa, do consumo de energia e da produção de resíduos.

Com o objetivo de garantir a sustentabilidade do seu processo produtivo e da sua cadeia de abastecimento, é relevante que as empresas trabalhem em conjunto com os seus fornecedores, demonstrando preocupação com o ambiente e partilhando uma estratégia sustentável. Este estudo pretende estudar a influência das soluções sustentáveis no portfólio de fornecedores das empresas.

Para o efeito, foi utilizado o método qualitativo, combinando dados secundários com uma entrevista a um colaborador da Empresa de Cervejas da Madeira, representante do Departamento de Sustentabilidade.

Palavras-chave: Sustentabilidade, Portfólio de Fornecedores, Responsabilidade social das empresas.

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GLOSSARY

ECM – Empresa de Cervejas da Madeira.

ISO – International Organization of Standardization.

SSCM – Sustainable Supply Chain Management.

SDS – Sustainably Developing Suppliers.

CSR – Corporate Social Responsibility.

B2B – Business-to-Business.

1. INTRODUCTION

We are in an era where everything is involved and evolves based on transparency and all companies feel the pressure to be part of this way of living and working. With this comes the need to guarantee and assure its loyal consumers that their concerns with sustainability are implemented in the entire philosophy of the company and its products.

The areas of influence for this work are the sustainability measures and policies that organizations implement, as well as how they affect their supply chain. The goal is to comprehend the implications of these measures for the organization and its supplier portfolio, which may or may not have undergone major changes. For this work, we also intend to evaluate the different practices and what are their advantages and disadvantages, for the company and for their suppliers.

Several authors have written about how sustainability practices affect supplier portfolios. Zaid et al. (2019) conducted research of 200 manufacturing companies. Companies who incorporated sustainable practices in their supplier portfolios had a lower environmental impact and higher financial performance, according to the report. Govindan et al. (2016) created a framework to help organizations understand how to incorporate sustainable practices in their supplier portfolios. The framework underlines the significance of approaching sustainability supply chain management holistically. This includes considering the environmental, social, and economic consequences of supplier relationships.

Implementing sustainable practices in supplier portfolios can be a complicated and difficult undertaking. It is, nonetheless, a vital step for businesses that are concerned about sustainability. Companies can reduce their own environmental effect, contribute to a more sustainable economy, and gain a competitive edge by partnering with sustainable suppliers.

By selecting a case study about a specific company, genuine and current conclusions regarding the impact of these sustainability measures can be

reached, and it is possible to comprehend the process by which companies choose and manage their suppliers.

The present work follows the deductive method of scientific knowledge production, in the sense that it starts from a set of theoretical knowledge with the objective of testing it through empirical research (Almeida & Freire, 2003). This is because it is intended to understand the effect of sustainability measures at the supplier level the company, by answering two research questions:

RQ1: How does sustainability practices implemented by companies affect their supplier's portfolio?

RQ2: How does sustainability practices and legislations adopted by third parties affect the company supplier's portfolio?

The study is divided into 5 chapters. The first is the Introduction where the framing the theme of the work and defining the objective. In the second chapter is the Literature Review and is divided into 3 sections: in the first the concept of Relationships and Networks between companies and their suppliers; in the second section the concept of Sustainability Practices and the different dimensions that can influence a company and their supply chain; and in the last one it is explained the relationship between suppliers and the SSCM. The third chapter presents the Methodology used where the choice of the case study is justified; an explanation of how data collection was carried out and how the information was collected.

The fourth chapter is the Case Study Analysis where we have a brief discussion about the F&B industry in Madeira Island, the description of the company being studied, and the identified results are presented.

Finally, in the last chapter, the Study Conclusions, the results, and conclusions are analysed, where we will make the connection between the literature review and the concepts studied with the results of the case study and draw the main conclusions and future developments.

2. LITERATURE REVIEW

2.1. Relationships and Networks

Business relationships are greatly impacted by the interdependencies that exist within business activities. These interdependencies include technology, knowledge, social relations, administrative routines and systems, and legal ties. All these interdependencies can coexist and influence the way companies operate. Companies can use these interdependencies to their advantage, and there are numerous examples of interdependencies (Håkan Håkansson and Ivan Snehot, 1995).

Technology is crucial in industrial markets and companies operate within the framework of available technology. The technology used is essential for business activities and can impact the relationship between two companies. Technical mismatches should be avoided as adaptations within companies often stem from the technical aspects of their products or processes. Technological interdependencies on an aggregated level are characterized by technological systems or paradigms that shape the overall business activity in industrial markets (Håkan Håkansson and Ivan Snehot, 1995).

The technical development of a company and its relationships depend on the technologies of direct partners and other third parties. Knowledge is a vital resource within every company, both explicit and tacit. The know-how of a company reflects its internal knowledge and the knowledge possessed by other companies and organizations with which it is connected through business relationships (Håkan Håkansson and Ivan Snehot, 1995).

The knowledge made available through relationships with customers, suppliers, and others enables a company's activities. Knowledge development occurs within relationships, leading to the creation of new knowledge.

Social relations are significant within business relationships as they involve individuals with diverse social roles. The social bonds established between individuals in different companies foster mutual trust and confidence during interactions (Håkan Håkansson and Ivan Snehot, 1995).

Administrative routines and systems involve information processing, control, and coordination among different parties.

Communication and information exchange in business are extensive and costly. Efforts are made to enhance information processing efficiency by establishing rules and administrative routines. Information systems may be developed and shared among multiple companies to address information processing costs and challenges. Solutions adopted within one relationship can influence possibilities and actions in other relationships (Håkan Håkansson and Ivan Snehot, 1995).

According to Håkan Håkansson and Ivan Snehot, maintaining and developing relationships with customers, suppliers, and third parties is crucial to marketing and purchasing. Understanding how these relationships interact and intervene is essential for productivity. Relationships have a significant impact on a company's activity structure, resource collection, and organization. The effects of relationships depend on their connections with other relationships.

Technical competence, capacity, productivity, innovativeness, and overall capability are all significantly influenced by business relationships. To position the company favourably within the business network, strategy development is necessary. A company's position affects the economic outcomes of its relationships over time and its ability to develop and maintain relationships with various parties. Essential to this is keeping an eye on changes in the network structure and devising strategies to adapt to or drive changes (Håkan Håkansson and Ivan Snehot, 1995).

Effectively managing relationships, their development, and their impact on the company and its strategy is crucial for economic performance. However, quantifying the precise economic consequences of relationship actions is challenging due to their complexity and the uncertainty of their long-term effects (Håkan Håkansson and Ivan Snehot, 1995).

Yet, awareness of effects and interdependence is necessary to influence outcomes in favour of the company. Behavioural rules derived from experience

and collective knowledge can guide effective behaviour and the formulation of relationship strategies.

2.2. Sustainability Practices

Given the consumerist society we live in today, transparency about beliefs and concerns about sustainability and ecological impact has never been so important for large companies. Customers expect companies to play a decisive role in supporting and preventing the scarcity of natural resources and highly polluting production processes while guaranteeing a high-quality and durable product.

To respond to these needs, companies have been investing in awareness actions and strategies, inviting their customers to take part in them.

The growing interest in sustainability and sustainable performance issues is creating pressures on companies to pay more attention to their environmental footprint (Zaid et al., 2019). Consequently, in recent years, organizations have started to implement this type of practices (Govindan et al., 2016; Rashid et al., 2019).

The concept of the sustainability tripod – triple bottom line – was created by John Elkington (1998) and is a philosophy sustainability in the centre of people, planet and profits have as what you would achieve when maximizing the use of these aspects, which correspond to the results of a company measured in economic, social, and environmental terms (see figure 1).

Figure 1 - Triple Bottom Line according to John Elkington (1998)

That said, the main goal is not only to generate income or economical value, but also to guarantee the best work conditions and environment to its employees, considering cultural diversity and eco-efficiency of its production processes.

2.2.1. Environmental Dimension

Alayón et al. (2017) in their study, showed that most sustainability practices remain strongly focused on the **environmental dimension**, with the largest number of practices emanating from principles relating to energy and materials conservation, and waste management.

The environmental influence of sustainability initiatives in industry in Portugal is a complex and multifaceted topic. However, some of the key areas where sustainability measures can have a positive impact include:

Energy efficiency improvements and the use of renewable energy sources can help to reduce energy consumption and greenhouse gas emissions.

Water conservation measures and the use of recycled water can help to reduce water consumption and pollution.

Creation of waste reduction and recycling programs can help to reduce waste generation and pollution.

The use of sustainable materials and the reduction of material waste can help to reduce the environmental effect of material extraction and processing.

Alayón et al. (2017) conducted a study to assess the environmental influence of sustainability measures in the Portuguese industry. The study found that sustainability measures had a positive direction on the environment in terms of reducing energy consumption, water consumption, and waste generation. However, the study also found that the power of sustainability measures varied depending on the industry sector and the specific measures implemented.

The environmental dimension of sustainability is the most focused on area of sustainability practices because the influence of human activity is becoming increasingly evident and pressing.

Many companies nowadays seek to have sustainability certificates in order to be more attractive to customers, investors, and other stakeholders. This is because sustainability is becoming increasingly important to consumers and businesses alike. Sustainability certifications can help companies to improve their environmental performance, reduce their costs, increase their sales, attract, and retain employees and manage their risks.

One way to develop the environmental part of sustainability is to implement an ISO 14001 environmental management system. ISO 14001 is an international standard that provides a framework for organizations to manage their environmental impacts. It is based on the principle of continuous improvement, and it requires organizations to set environmental objectives, develop plans to achieve those objectives, and monitor their progress.

Govindan et al. (2016) provide some useful insights on how businesses might incorporate sustainable environmental metrics in their supplier portfolios.

One of the article's important takeaways is that firms must address sustainable supply chain management holistically. This means that businesses must think about the environmental, social, and economic consequences of their supplier connections. A corporation, for example, may be able to lessen its environmental impact by collaborating with a supplier who employs renewable energy sources. However, if the supplier does not pay its employees a living salary, the company is not sustainable.

According to the writers of the paper, firms must move beyond a standard transactional approach to supplier relationships. Instead, businesses must cultivate more collaborative partnerships with their suppliers. This is required to successfully implement sustainability programs.

The authors of this paper also propose that businesses should be open about their sustainability aims and expectations. This will assist suppliers in understanding what they must do to achieve the company's sustainability

standards. They give various instances of how businesses can include sustainable environmental metrics in their supplier portfolios. Companies, for example, can create environmental criteria for suppliers, provide environmental sustainability training and support to suppliers, cooperate with suppliers to develop new sustainable goods and *processes,* or share best practices on environmental sustainability with suppliers.

The authors recognize that incorporating sustainable environmental indicators into supplier portfolios can be expensive and time-consuming. They maintain, however, that the advantages exceed the costs. Companies that care about the environment must be willing to invest in their suppliers.

2.2.2. Social Dimension

Regarding sustainability practices in the **social dimension**, these refer to the actions of organizations to improve and maintain the quality of life without neglecting environmental aspects (Yusuf et al., 2013), and include internal safety inspections for employees; external audits of the work environment; health and safety management systems; training plans; career development programs; and employee rotation (Montabon et al., 2007).

2.2.3. Economical Dimension

Regarding sustainability practices at an **economic level**, the measurement of KPIs is part of it; the monitoring and assessment of business objectives; and prioritizing investments in technology (Alayón et al., 2017).

It is concluded that currently the development of sustainable business is a pressing need for organizations, so they are increasingly adopting practices to integrate sustainability into their operations.

Sustainability encourages the efficient use of resources and, consequently, an efficient management of costs and waste produced. It aims to allow the companies deal efficiently with their future risks, taking care of the financial health of the company, while considering the health of people and the planet

(Osland, 2003). According to Brundtland (1987, p.1128), sustainability is “meeting the needs of the present generation without affecting an ability of future generations to supply as their own.”

2.2.4. Institutional Factors

The concept of "institutional factors" examined in the article published by Rosati and Faria’s (2019) refers to the broader societal, regulatory, and organizational influences that shape an institution's sustainability practices. These factors encompass a wide range of elements, including governmental policies, industry norms, corporate governance structures, and public perception. Understanding the interplay between these institutional factors and an organization's approach to sustainability is crucial for comprehending the motivations and challenges that institutions face in their sustainability journey.

According to Rosati and Faria's research, these elements cover a complete collection of societal, regulatory, and organizational aspects that collectively impact an institution's sustainability journey.

1. Socioeconomic Influences: Societal considerations play an important influence in the field of sustainability. These elements include public knowledge, cultural norms, and societal beliefs concerning sustainability. Institutions may feel driven to adopt more sustainable practices to meet societal expectations in nations where environmental consciousness is strong. Societal pressures, on the other hand, can drive organizations to address social and environmental issues in their sustainability reports to maintain their social standing.

2. Regulatory Frameworks: Governmental laws and regulations are critical institutional determinants that can affect an institution's sustainability approach. Specific sustainability criteria, such as emission reduction targets, waste management protocols, or social responsibility demands, can be imposed on corporations by laws and regulations. Compliance with these regulations is frequently a powerful motivator for sustainability reporting and action.

3. Industry Standards: Institutional elements include industry-specific practices and standards. Different industries may have different sustainability difficulties and expectations. Companies in specialized industries frequently link

their sustainability efforts with industry norms and benchmarks. Following these guidelines can help an institution's competitiveness and reputation in its industry.

4. Corporate Governance Structures: An institution's corporate governance framework, including its board of directors and senior leadership, can have a substantial impact on sustainability practices on an internal level. Boards and CEOs can develop sustainability goals, committees, and resources to promote sustainability projects. Leadership commitment to sustainability is an important component in encouraging sustainability reporting and action.

2.3. Supplier Relationships

Implementing practices of social responsibility and sustainability represents a relevant pillar for building trust with stakeholders and may even be the key to increasing of a company's competitiveness (Urip, 2010).

According to Porter (1980), competitive advantage arises fundamentally from the value that a certain company can give to its customer and that exceeds the manufacturing cost for the company.

The organizations, in the past years, have been significantly encouraged to be responsible for their relations with the environment, which is part of the trend of sustainable development, according to Swarbrooke (2000). Thus, with public pressure and political actions, the society is demanding a more ethical and effective attitude towards nature from organizations.

In a study, Maignan and Ralston (2002) decided to study the reasons why companies act in a socially responsible way, and which are communicated on institutional websites, two of which refer to value and stakeholder reasons. One of the reasons being a response to social pressure from one or more groups of stakeholders; and, on the other, social responsibility is seen as “part of the company's culture or as an expression of its core values” (Maignan & Ralston, 2002 p. 501).

Ligeti and Oravecz (2009, p. 138) state that “corporate social responsibility and related communication are inseparable”. Many companies are now opting to issue an annual report as a way of communicating their actions, often referred to as a social responsibility report or a performance report.

2.3.1. Sustainable Supplier Development

Supply chain management plays a critical role in promoting CSR and sustainability practices in B2B markets. A sustainable supply chain involves integrating social and environmental considerations throughout the entire supply chain, from raw materials to final products. Firms must collaborate with their suppliers to adopt sustainable practices and leverage technology such as blockchain to promote transparency and accountability. A sustainable supply chain is essential for reducing environmental impacts, improving social outcomes, and achieving CSR and sustainability goals in B2B markets.

The body of research on Sustainable Supply Chain Management (SSCM) has grown significantly, with some scholars suggesting that the field has reached a point of saturation for SSCM-structured literature reviews, as noted by Carter and Washispack (2018). However, despite the proliferation of research in this area, firms still face difficulties in improving supplier sustainability performance. The cost of shifting practices to achieve greater levels of sustainability is one significant barrier, and suppliers are often sceptical of the potential for financial return. Additionally, suppliers may encounter cultural, technological, strategic, and language barriers, as noted by Ağan et al. (2018), which can prevent them from pursuing sustainable performance improvement initiatives unless they are invested in the relationship with the requesting customer. As highlighted by Touboulic and Walker (2015), Brockhaus et al. (2013), and Ghijsen et al. (2010), suppliers are unlikely to overcome these barriers without a commitment to a strong partnership with their customers.

Limited research has been conducted on sustainability metric trade-offs in Sustainably Developing Suppliers (SDS). It is crucial to comprehend the trade-offs that decision-makers face when implementing SDS initiatives. This is

important because purchasing and supply managers usually determine the type of SDS initiative that firms pursue within their supply base. As noted by Schneider and Wallenburg (2012), some organizations may prioritize supplier performance improvement across the entire triple bottom line, while others may prioritize certain sustainability aspects at the expense of others.

3. METHODOLOGY

The empirical work carried out allowed us to assess how the sustainability strategies of Empresa de Cervejas da Madeira influence on their supplier portfolio.

We chose to resort to an exploratory case study combining an interview with secondary data. Using the qualitative method, allows "a better understanding of the research problem" (Creswell, 2007). Hence, regarding the data collection, we opted for a semi-structured interview where we intended to explore the understanding and the vision of *Empresa de Cervejas da Madeira* (ECM) concerning the topics previously addressed, allowing us to understand their approach and philosophy of sustainability, as well as the importance this represents for the company.

Given the qualitative analysis of the study, data collection was done in two ways. For primary data, an interview (Appendix I) was carried out with a member of the ECM team and responsible for Quality and Sustainability. Secondary data collection will be done through digital material and articles published in the press about the company and the market in Portugal.

The case study method is generally based on qualitative information. Giving the nature of this process, it is important for the investigator to minimize biases in their investigation, as these may be present in various places, from collecting to analysing and interpreting information. Thus, through the crossing data process it is possible to have greater confidence in the results obtained and in the entire process of investigation (Yin, 1994).

4. CASE STUDY – EMPRESA DE CERVEJAS DA MADEIRA

4.1. Food and Beverage Industry in Madeira, Portugal

Portugal has a rich culinary legacy as well as a strong commitment to sustainability. Madeira Island, off the coast of Portugal in the Atlantic Ocean, is no exception.

There has been a growing understanding of the importance of sustainability in the food and beverage business in recent years. This is due to a variety of issues, including the influence of climate change, the depletion of natural resources, and consumer desire for more sustainable products. There are several government and business initiatives in Portugal to encourage sustainability in the food and beverage industry. The Portuguese government, for example, has launched several programs to assist farmers in switching to sustainable agriculture practices.

A variety of sustainability efforts, such as the Portuguese Food and Beverage Sustainability Charter, have also been formed by the Portuguese food and beverage industry.

Sustainable practices in beer production on Madeira Island highlight breweries' attempts to reduce their environmental footprint and promote responsible consumption.

1. Ingredient Sourcing: Many breweries on Madeira Island emphasise the use of locally obtained ingredients like barley and hops. This not only benefits the island's agriculture but also lessens the carbon footprint of long-distance transportation (Brewers Association, 2020).

2. Water Efficiency: Water is a valuable resource, and Madeira brewers are introducing water-efficient methods to reduce use. Recirculation systems and wastewater treatment plants are becoming more prevalent (Ceres, 2021).

3. Renewable Energy Sources: Some breweries in Madeira are investing in renewable energy sources such as solar panels and wind turbines to reduce energy-related emissions (European Environment Agency, 2020).

4. Packaging Innovations: One area of emphasis is sustainable packaging. Breweries are lowering their use of plastic and using eco-friendly materials such as recyclable cans and glass bottles (British Beer and Pub Association, 2021).

5. Waste Reduction and Circular Economy: Efforts to decrease waste include turning leftover grains into baked goods or recycling them for animal feed. Local composting programs are also supported by several breweries (Sustainable Packaging Coalition, 2018).

6. Breweries actively connect with the local community through projects such as educational brewery tours, environmental awareness campaigns, and collaborations with local organizations (CraftBeer.com, 2019).

7. Certification and Sustainability Standards: Several brewers on Madeira Island strive for sustainability certifications such as ISO 14001 or organic certificates, which demonstrate their dedication to sustainable processes (International Organization for Standardisation, 2021).

In Madeira Island, Portugal, the beer production industry is changing better sustainability. Breweries are adopting environmentally responsible techniques, like as sourcing local ingredients, conserving water, and minimizing waste, all while actively engaging with the community. These initiatives are in line with global trends in sustainable food and beverage production and help to preserve Madeira's distinctive natural environment.

4.2. The company

Empresa de Cervejas da Madeira (ECM) is a Portuguese company that manufactures, markets, and distributes regional beers, sodas, and waters. It was started in 1934 by four families as a partnership and has since evolved to become the largest regional corporation in its field.

ECM manufactures its own beer, soft drinks, and bottled water brands, as well as representing other companies in categories such as spirits, wines, juices, nectars, bottled waters, milk, and olive oils. It employs roughly 250 people and serves approximately 3500 customers, encompassing 100% of the Region's outlets.

To suit the needs of its consumers, ECM offers a pre-sale system with 24-hour delivery, the Region's largest sales force in the sector, a teleshopping service, and a customer support hotline. It also has a strong ability to implement promotions and marketing campaigns for all its customers. ECM has recently increased its efforts to make its goods available to Portuguese communities across the world.

In other terms, ECM is a major beverage producer and distributor in Madeira, Portugal. It provides a wide selection of items, both its own and those of other prominent brands. ECM provides exceptional customer service and is growing its global footprint.

Figure 2 - Name and logo of the company

Source: Official ECM website

ECM's mission is to be the most reputable company in the market for the production and distribution of beers, soft drinks, and bottled water, also aiming to be consumers' favourite brand. According to their website, their mission is also to “(…) provide increased job satisfaction and well-being to all our team. We want to assure the longevity and profitability of the company.”

ECM is a company that has focused on sustainability from a very early age and has invested in initiatives that would contribute to its sustainability in economic terms, but also considering the environment.

4.3. Brand positioning in sustainability

Since 2003, when the topic of sustainability was not as urgent as it is today, ECM has embraced European Standards and has been a pioneer both in its sector and nationally in Quality and Environmental Certification. In Portugal, ECM was the first beer producer to be certified with the Environmental Management Standard ISO 14001.

ECM's Environmental Management Manual emphasizes the following major goals:

1. To ensure competitiveness, continually produce products and services that meet and exceed customer demands and expectations while maximizing resources and saving costs.
2. To build trust and confidence on a national and international scale by ensuring that their products and services adhere to defined quality standards and meet all legal, regulatory, and client requirements.
3. Maintaining a strong environmental performance requires not only completing all legal duties and following corporate rules, but also proactively addressing stakeholders' expectations. This includes careful monitoring of the environmental effect of their corporate operations, products, and services.

4.4. Main sustainability measures adopted by the company

According to the conversation with the person responsible for the Quality and Sustainability Department of ECM, as ECM is a beverage production factory, electrical consumption was quite high. This led to great concern on the part of the company regarding the levels of electricity being consumed.

In 2020, one of the steps implemented was the installation of 2,273 solar panels with a total electrical power of 780kW across the whole roof of its main warehouse. These panels, which will cover an area of 5500m2 of the plant (in 2023), will allow an annual reduction of 400 tons of CO2 emissions, according to ECM, which claims that with the installed power, the business will be able to work only with electrical energy from the panels in shorter times of production.

This installation is the second most powerful solar electric energy production plant on the island of Madeira, behind the one erected on land in the Caniçal Free Trade Zone.

Figure 3 - Photovoltaic panels installed in the roof of ECM's warehouse

Source: Official LinkedIn Page Post about Solar Energy ECM

For the installation of the photovoltaic panels, ECM subcontracted the company RC Automação, which has now become its recurring supplier in the sense that it now provides maintenance services. This measure had a direct impact on its supplier portfolio, as ECM as a company needed someone to guarantee the correct operation of the panels and their durability.

The project to replace the steam-generating equipment was finished in 2022. It began to run on biomass (renewable energy) rather than fuel, resulting in a reduction in pollutant emissions into the environment of roughly 2100 tons of CO2/year and, as a result, a reduction in the consumption of fossil fuels.

Figure 4 - New biomass production equipment

Source: Official LinkedIn Page New production method with steam

Figure 5 - Biomass made from wood chips

Source: Official LinkedIn Page New production method with steam

Since its inception, one of the company's key policies has been the return of bottles and glass for reuse. ECM was a national pioneer with the introduction of reusable glass bottle collection machines onto the market in 2018, currently having twelve reverse vending machines. This dedication to sustainability resulted in 280 tons less CO2 emitted into the environment.

In 2022, ECM managed to collect 3.6 million bottles from supermarkets. The bottles can be used an average of 40 times.

Figure 6 - Bottle collector in Forum Madeira

“By August 2023, around 1,169 million bottles had already been collected in these machines, representing an increase of 27% compared to 2022 and 46% compared to 2021” (ECM, 2023).

According to the corporation, this solution has many advantages, not only environmental ones. For the ultimate customer, it represents a savings opportunity; by depositing empty glass bottles in this machine, the user saves by retrieving the value of the deposit paid at the time of purchase, rather than depositing it in the glass bottle with no financial feedback. The product always becomes cheaper for the user as it recovers this value, which is translated into a receipt to be used while food shopping.

The automatic container collection system automates the collection, sorting, and processing of returned packaging for reuse. Consumers obtain a valid discount coupon at the supermarket after completing the deposit of their empty bottles.

The existence of a returnable tare for end customers and HORECA customers has eliminated the need to consume glass, since in regional and national terms 100% of glass is recycled. Therefore, this has affected the purchase of glass from BA Glass and VIDRALA. In addition to the environmental motivations for reusing bottles, the entire process and life cycle of the glass that was bought was also taken into consideration so that ECM restricted itself to buying glass only when exporting bottles, as they need to be more durable. The glass is transported by sea in a container, which is very cost-effective but also very polluting.

The company is keen to understand the full life cycle of the products it buys from its suppliers. For example, when they became interested and concerned about the origin of the cardboard used in the packaging they were buying and what kind of environmental impact it might have, they asked the supplier if they were taking any kind of care and were informed that it was certified by the FSC (Forest Stewardship Council) which is an international organization that promotes a responsible and viable management of the world’s forests. For that reason, ECM asked for the symbol of this certificate to be inserted in their packaging to raise awareness among their customers, but above all to demonstrate that there is always room to develop their relationships with suppliers.

Given its industry, ECM has international suppliers that are common to other companies in its sector. What happens is that there isn't always much room for negotiation, but at the same time they are renowned companies that are already aware of the problem of sustainability, and in this case their measures don't always go against what the suppliers can/want to offer.

Regarding economic sustainability, ECM operates internally, for example in its maintenance operations, i.e., all the industrial equipment used in the

production of its drinks is managed by its in-house team (except the Biomass Boiler). Here we have the added saving in the sense that they don't use external companies for this type of service, thus assuming that there is no impact on any supplier since they don't subcontract this type of specialized work.

4.5. Sustainability measures imposed by third party institutions

Given the industry in which ECM operates, and the certificates it already collects, there are always steps and requirements that must be met. Over the years, updates are made to standards and new decrees are even imposed that mean companies must adapt to them.

As ECM distributes and produces, in addition to beer, soft drinks and water, it also has plastic packaging made with the PET component (Polyethylene Terephthalate).

In Portugal, according to Law No. 76/2019, of September 2 from 2022, “Beverage containers with a capacity of less than three litters, that is, containers used to contain liquids, such as bottles, and composite packaging for beverages, that have capsules or lids can only be placed on the market if the capsules and lids remain attached to the containers during the product's intended use phase”, in other words, this requires that all plastic bottles sold by ECM to be completely changed.

According to Directive (EU) 2015/1535 of the European Parliament and the Council, "from 2025, bottles for (...) manufactured with polyethylene terephthalate as the main component ("PET bottles") shall contain at least 25% recycled plastic (...)".

The fact that ECM is in an Industrial Park also must comply with a series of requirements, mainly regarding waste management. DRECHE deals with enamel residues from the beer manufacturing process, which are now transformed into animal by-products at DGAV. This change allowed ECM to transform waste that would previously have been treated and disposed of into something useful.

5. CONCLUSIVE DISCUSSION

This dissertation aimed to understand how the sustainability measures adopted and implemented by companies can influence their supply chain. Relationships between companies and their suppliers are deeply influenced by the interdependencies that coexist within their industry and their operations (Håkan Håkansson and Ivan Snehot, 1995). As we saw previously in the literature review, being sustainable can be seen from several perspectives, such as economic, social, and environmental.

Based on the literature review, it was possible to realize that sustainability and supplier relations are interconnected aspects that are influenced by various external factors. A good relationship between customer and supplier will always enable negotiation and facilitate decision-making.

After analysing the concepts and based on the information gathered, it was possible to identify that companies' choices do have an influence on their supply chain and supplier portfolio and that third parties such as governments and legislation also have an impact on the choices and changes that companies adopt during their operations.

How does sustainability practices implemented by companies affect their supplier's portfolio?

Companies' supplier relationships may alter because of sustainability policies. A firm that decides to switch to renewable energy sources may need to locate new providers of renewable energy, while a company that intends to reduce its trash creation may need to find new suppliers of waste recycling or reuse.

These measures may have an impact on the relationship between businesses and their suppliers. A corporation that demands its suppliers to meet specific social and environmental criteria, for example, may need to give them with assistance and training. This might result in a more solid and collaborative relationship between the company and its suppliers.

Having said that, sustainability policies implemented by businesses can result in a shift in the supplier portfolio itself. To lessen its environmental effect, a firm may need to purchase materials from alternative suppliers or change its manufacturing techniques, resulting in changes in the company's supplier portfolio.

The installation of photovoltaic panels and the replacement of steam-generating equipment with biomass at Empresa de Cervejas da Madeira (ECM) had a direct influence on the company's supplier portfolio. ECM needs to subcontract the installation and maintenance of the photovoltaic panels and new steam-generating equipment to RC Automação and Energia Local.

Alayón, Säfsten, and Johansson (2017) identify five fundamental conceptual sustainable production principles: resource efficiency, clean production, product stewardship, social responsibility, and stakeholder involvement in their article.

ECM's proposal to replace its steam-generating equipment with biomass-fired equipment demonstrates the company's dedication to resource efficiency and clean production principles. ECM is lowering its usage of fossil fuels and greenhouse gas emissions by transitioning to renewable energy. This project is also expected to benefit ECM's supplier portfolio. ECM's suppliers must be able to supply the company with a consistent supply of biomass fuel.

The company demonstrates its commitment to sustainable procurement by inquiring about the FSC certification of the cardboard used in its packaging from its supplier. The business's ambition to comprehend the entire life cycle of the products it purchases from its suppliers is an excellent example of how sustainability measures undertaken by businesses can impact their supplier portfolio.

Most importantly, the company's suppliers must be able to meet the company's sustainability standards. This may necessitate adjustments to vendors' production processes and supply chains. In addition, the company's dedication to sustainability is likely to attract new suppliers who can deliver more sustainable materials and services to the company. Lastly, the company's

dedication to sustainability is likely to aid in the development of stronger ties with its suppliers.

One of the most important effects has been on ECM's glass suppliers. Because of ECM's returnable tare program, the company no longer needs to purchase new glass for most of its products. As a result, demand for glass from ECM's suppliers, BA Glass and VIDRALA, has decreased. ECM now exclusively buys glass for export bottles, where durability is critical.

The choice by ECM to handle its own maintenance operations internally is an excellent example of how businesses may embrace sustainability practices that affect their supplier portfolio. ECM reduces its dependency on external vendors by controlling its own maintenance activities. This can help to lessen ECM's supply chain's environmental and social effect.

John Elkington developed the notion of the sustainability tripod, sometimes known as the triple bottom line, in 1998. It acknowledges that businesses must evaluate not only their economic success, but also their social and environmental impact.

The decision by ECM to run its own maintenance operations is an example of a sustainable approach that can benefit its supplier portfolio. ECM is reducing its dependency on external providers by insourcing operations related to maintenance. This may end up in a variety of benefits including:

Reduced costs: ECM will no longer need to pay external suppliers for their services; improved quality: ECM will have more control over the process and can ensure that it is meeting its own standards; and reduced environmental impact: ECM may be able to reduce its environmental impact by reducing its reliance on external suppliers.

How does sustainability practices and legislations adopted by third parties affect the company supplier’s portfolio?

The paper by Rosati and Faria (2019) presents a useful framework for understanding how third-party sustainability policies and regulations can impact a company's supplier portfolio. According to the authors, institutional variables

such as government legislation, industry standards, and societal norms have a substantial impact on a company's sustainable policies. These institutional variables can also have a substantial impact on the supplier portfolio, as businesses may need to change suppliers to comply with new legislation or fulfil the expectations of their customers and other stakeholders.

In the instance of ECM, a new Portuguese legislation requiring all plastic bottles to have lids that remain connected to the containers during the intended usage phase is an example of an institutional element that is expected to have a substantial impact on the company's supplier portfolio. The company can reduce supply chain disruption by working closely with its existing suppliers to help them change their products to comply with the new decree or also collaborate with its suppliers to create new methods of recycling plastic bottles with attached lids.

By collaborating with its suppliers, ECM can reduce its environmental impact, improve its reputation, and gain a competitive advantage.

Because of its placement in an industrial park, ECM is subject to several waste management regulations. These requirements were most likely imposed by the government or the industrial park itself.

DRECHE is a professional provider specializing in the treatment and disposal of food and beverage waste. ECM's partnership with DRECHE exemplifies the type of engagement required between organizations and their suppliers to overcome sustainability concerns. ECM is collaborating with DRECHE to find long-term waste management solutions. This agreement will most likely benefit both companies. ECM will be able to reduce its environmental impact, while DRECHE will be able to expand its operations.

Finally, ECM's ability to collaborate with DGAV, which converts its trash into something beneficial, is an example of how businesses may collaborate with their suppliers to lessen their environmental effect.

Limitations and Future Research

There are multiple limitations to this study. First and foremost, the study is based on a single company. This means that the study's conclusions may not be applicable to other businesses. Second, the research relies on data from a single moment in time. This means that the analysis does not account for the changing dynamics of sustainability practices and supplier portfolios.

Third, it was not possible to extract all the information in the interview, as there is no department dedicated 100 per cent to sustainability. It would be interesting in the future to deepen this study based on the production process and by talking to someone responsible for production.

Despite these limitations, the study provides useful information about the relationship between sustainable practices and supplier portfolio and the data imply that sustainable practices can improve supplier portfolio performance. More study is needed, however, to validate these findings and better understand the mechanisms by which sustainable behaviours influence supplier portfolio.

We can acquire a better knowledge of the relationship between sustainable practices and supplier portfolio by resolving these limitations and doing additional research in these areas. Companies can utilize this knowledge to design and implement more effective sustainable supply chain management processes.

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APPENDIX I

Questionnaire Interview

1. Does ECM consider itself a company concerned with sustainability? What measures and projects have been adopted/implemented in the recent years?
2. Since you are an ISO 14001 certified company, what was the process like to obtain this certificate? What barriers have been overcome in terms of regulation/laws, environmental requirements imposed by the Government/the International Organization for Standardization? Has this certification had any impact on your supply chain?
3. I checked through social media and even when going to commercial spaces that there are collection points for bottles produced by ECM. How was the implementation of this project and what is its main objective? Did you have the support of your suppliers?
4. Was there any supplier that adopted/implemented sustainability or waste control measures that directly affected you? What are the consequences? Examples of adjustments that had to be made to respond to them.
5. Sustainability is linked to several perspectives within a company, having benefits/impacts in different aspects. Leaving aside the environment, was there any other impact in social or economic terms that these measures had on your company and your supply chain?
6. Do you feel any resistance from your suppliers when new ideas arise to become a more sustainable company? What are the biggest challenges and concerns? Do you think that the fact that there are already long-lasting and stable relationships with suppliers can be a help and convey confidence when making decisions?
7. What are your requirements to partner with a supplier? Do you always look for them to have some type of certification, or practices/values common to yours? Has a contract ended because you felt it didn't make sense for you to continue having relationships with a third party?

8. What are your plans within sustainability for the future? Do you have a project you would like to implement? Any suggestions to make to any of your suppliers?

APPENDIX II

Products produced by Empresa de Cervejas da Madeira

CORAL BRANCA

CORAL TÓNICA

NON-ALCOHOLIC CORAL

NON-ALCOHOLIC CORAL TÓNICA

CORAL ESPECIAL

CERVEJA PORTUGUESA

PURE MALT LAGER

CIDER

BRISA MARACUJÁ

BRISA MARACUJÁ

BRISA MAÇÃ

BRISA LARANJA

BRISA PINEAPLE

BRISA LIMONADA

LARANJADA

SODA

Figure 7 - Products produced by ECM.

Source: ECM Website