

**The Effects of a Demand Forecast System on a Company's Last-Mile Financial and
Operational Efficiency Performance: The Vintage Bazaar Case Study**

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ABSTRACT

The present study aims to investigate the Last-Mile Financial and Operational Efficiency Performance of a Portuguese company in the fashion industry. Given the today's growing uncertainty and risk of disruptions in business, especially in this industry, companies must invest in building agile supply chains that can easily adapt to this surrounding environment as well as to the customer's unsteady demand variability patterns. With demand forecasting being extremely interconnected with the company's LM performance, this study proposes to evaluate the LM impact, through the implementation of Demand Forecasting tools. Data gathered from the company and customers served as an input for the Measuring Attractiveness by a Categorical-Based Evaluation Technique (MACBETH), a Multi-Criteria Decision-Making Analysis. Key findings were that, for either of the scenarios built based on the demand forecasting techniques, the 2nd and the 3rd, the outcomes were significantly more attractive than the company's current business scenario, the "As-Is" Scenario. The most attractive scenario provided by the MACBETH System proved to be the 3rd, nonetheless the 2nd was considered most feasible and in accordance to the company's medium-term objectives.

Keywords: Last-Mile Logistics, Demand Forecasting, Financial and Operational Efficiency, MACBETH

LIST OF ABBREVIATIONS

AHP: Analytical Hierarchy Process

BC: Brand Concept Criteria

C: Supplier's Cost Criteria

ELECTRE: Elimination and Choice Translating Reality

LML: Last Mile Logistics

MACBETH: Measuring Attractiveness by a Categorical-Based Evaluation Technique

MADM: Multiple Attribute Decision Making

MAUT: Multiple Attribute Utility Theories

MCDM: Multi-Criteria Decision Making

MODM: Multiple Objective Decision Making

PROMETHEE: Preference Ranking Organization Method for Enrichment Evaluations

S: Delivery Speed Criteria

SAW: Simple Additive Weighting

Sv: Service Quality Criteria

VB: Vintage Bazaar

INDEX

1. INTRODUCTION	2
1.1. Context Description.....	2
1.2. Research Question.....	3
1.3. Objectives.....	3
1.4. Methodology.....	4
1.5. Structure.....	5
2. LITERATURE REVIEW	6
2.1. Introduction	6
2.2. Core Literature Review: Last Mile Logistics	7
2.3. Complementary Literature Review	8
2.4. Conclusion.....	12
3. RESEARCH METHODOLOGY	12
3.1. Investigation Methodology.....	12
3.2. Methodology Steps.....	13
4. CASE STUDY	32
5. DATA ANALYSIS AND DISCUSSION	34
6. CONCLUSIONS	64
7. LIMITATIONS	66
BIBLIOGRAPHY	67
APPENDICES	71
Appendix 1 – Application of SAW Methodology in Fashion Industry.....	71
Appendix 2 - Interview Questions	71
Appendix 3 – General Sales Analysis by Categories in 2022.....	72
Appendix 4 – Sales Analysis of the Online Store in 2020.....	73
Appendix 5 – Sales Analysis of the Online Store in 2021.....	73
Appendix 6 – Sales Analysis of the Online Store in 2022.....	73
Appendix 7 –Sales Analysis of the Santo Amaro de Oeiras Store in 2020	74
Appendix 8 –Sales Analysis of the Santo Amaro de Oeiras Store in 2021	74
Appendix 9 – Sales Analysis of the Santo Amaro de Oeiras Store in 2022	75
Appendix 10 – Sales Analysis of the Chiado Store in 2020	75
Appendix 11 – Sales Analysis of the Chiado Store in 2021	75
Appendix 12 – Sales Analysis of the Chiado Store in 2022	76
Appendix 13 – Sales Analysis of the Porto Store in 2021.....	76
Appendix 14 – Sales Analysis of the Porto Store in 2022.....	76

Appendix 15 – All Stores Sales Analysis for Collection “Tica”	77
Appendix 16 – All Stores Sales Analysis for Collection “Maria”	77
Appendix 17 – All Stores Sales Analysis for Collection “Mafalda”	78
Appendix 18 – All Stores Sales Analysis for Collection “Happy Friday 01”	78
Appendix 19 – All Stores Sales Analysis for Collection “Carminho”	79
Appendix 20 – All Stores Sales Analysis for Collection “Happy Friday 02”	79
Appendix 21 – All Stores Sales Analysis for Collection “Rita”	80
Appendix 22 – All Stores Sales Analysis for Collection “Happy Friday 03”	80
Appendix 23 – All Stores Sales Analysis for Collection “Filipa”	81
Appendix 24 – All Stores Sales Analysis for Collection “Happy Friday 04”	81
Appendix 25 – All Stores Sales Analysis for Collection “Luisa”	82
Appendix 26 – All Stores Sales Analysis for Collection “Happy Friday 05”	82
Appendix 27 – All Stores Sales Analysis for Collection “Rio”	83
Appendix 28 – All Stores Sales Analysis for Collection “Happy Friday 06”	83
Appendix 29 – All Stores Sales Analysis for Collection “Anna”	84
Appendix 30 – Data Gathered from ERP System per Collection per Item Category	84
Appendix 31 – Pivot Table with the Value Rankings for Each Item Category	85
Appendix 32 – Vintage Bazaar Organizational Chart	85
Appendix 33 – Average Cost Price by Flash Item Category	86
Appendix 34 – Average Cost Price by Exclusive Item Category	86

FIGURE INDEX

Figure 1 - Methodology Steps	4
Figure 2 - Classification of MCA Methods	10
Figure 3 - Participants view of Vintage Bazaar Supply Chain.....	25
Figure 4 - Words chosen by each Participant.....	29
Figure 5 - Individual Criteria fit onto Brand Concept.....	29
Figure 6 - Criteria Ranking by Ascending order of Importance.....	30
Figure 7 - Vintage Bazaar Supply Chain and Major Constraints	33
Figure 8 - Evaluation Criteria.....	35
Figure 9 - Criteria Tree Construction	35
Figure 10 - Evaluation Criteria.....	36
Figure 11 - Exclusivity Performance Levels.....	38
Figure 12 - Speed Performance Levels.....	39
Figure 13 - Service Performance Levels	40
Figure 14 - Suppliers Cost Performance Levels	41
Figure 15 – Scenario Rankings by decreasing order of local attractiveness.....	44
Figure 16 - Dominance Analysis	44
Figure 17 – “Brand Concept” Criteria Value Function	45
Figure 18 - Brand Concept Value Function Validation.....	46
Figure 19 - "Service Quality" Criteria Value Function	47
Figure 20 - Service Quality Value Function Validation.....	48
Figure 21 - "Speed of Delivery" Criteria Function.....	49
Figure 22 - Speed of Delivery Value Function Validation	50
Figure 23 - "Supplier’s Cost" Criteria Function	51
Figure 24 - Cost Value Function Validation	51
Figure 25 – Criteria Ordering with Swing Weighting.....	53
Figure 26 - Difference of Attractiveness from "Neutral" to "Good" in “BC”	54
Figure 27 - Difference of Attractiveness from "Neutral" to "Good" in “Sv”	54
Figure 28 - Difference of Attractiveness from "Neutral" to "Good" on “S”	54
Figure 29 - Difference of Attractiveness from "neutral" to "Good" on "C"	55
Figure 30 - Weighting Validation.....	56
Figure 31 - Scenarios Performance through "BC"	57
Figure 32 - Scenarios Performance through "Sv"	57
Figure 33 - Scenarios Performance through "C"	58
Figure 34 - Scenarios Performance through "S"	58

Figure 35 - Sensitivity Analysis for "BC"	59
Figure 36 - Sensitivity Analysis for "BC" Weight Alterations	60
Figure 37 - Sensitivity Analysis for "Sv"	60
Figure 38 - Sensitivity Analysis for "S"	61
Figure 39 - Sensitivity Analysis of "C"	61
Figure 40 - Sensitivity Analysis for the "C" with Weight Alterations	62
Figure 41 - Summary of the Macbeth Decision Aid Process	62

TABLE INDEX

Table 1 - Percentage of Most and Least Valuable Items	17
Table 2 - Participants with Respective Job Title and Description	24
Table 3 - Critical Activities of the VB Company by Interviewee	26
Table 4 - Identified Pros and Cons.....	28
Table 5 - Table of Performance for each Scenario	42
Table 6 - Overall Value Table for Scenarios.....	52
Table 7 - Weighting Judgements Matrix	55
Table 8 - Completed Overall Value Table.....	56

1. INTRODUCTION

1.1. Context Description

The present chapter presents a concise overview of the proposed Master Thesis project, starting by describing the overall context. Then, the problem statement will be detailed as well as the chosen project approach. Additionally, a brief company presentation will follow. Then, the study's objectives will be presented as the research question definition. Also, a brief introduction to the chosen methodology will be covered, followed by an overview of the dissertation structure.

The fashion industry has undergone an immense change in the last few years, especially after the introduction of e-commerce (Kharfan et al., 2020). Also, disruptions such the Covid-19 Pandemic and the Ukrainian War, have been changing the supply chain as we used to know. There have been dramatic shifts concerning global competition, product development times, suppliers' availability, and, more significantly, the consumers' purchasing behaviour (Giri & Chen, 2022). Consumers are demanding their products to be delivered in increasingly shorter times, which is providing companies in this area of business an opportunity to reshape their supply chains.

Fashion retailers must focus on building an agile supply chain that can quickly adapt to the customer's unsteady demand variability patterns (Kharfan et al., 2020). And, to achieve such a thing, a well-established and efficient demand forecasting management is required.

Demand forecasting plays a crucial role in managing supply chain operations in the fashion retail industry and serves as an input for all the supply chain processes and activities, such as raw materials planning, supply planning, inventory management, sales, and merchandising (Giri & Chen, 2022). On top of that, the fashion industry is faced with extra difficulty in supply chain management - seasonality of the products - which makes it even harder for companies to establish the product-selling approach.

Within this setting, increase demand forecast viability is key to the fashion industry companies. So, this project proposes to study the effects of a demand forecast system on a fashion retailer last-mile financial and operation efficiency.

The chosen company is a fashion retailer company called Vintage Bazaar. It is a Portuguese-based small and medium enterprise (SME) that has been on the market for 16 years. The core of this company is retailing, but as it will further be addressed, focus of this company goes beyond selling clothing: it is about styling, building confidence and the experience of fashion.

This company has undergone an immense change over the years, regarding to the supply chain strategy and its operations, especially with the Covid-19 Pandemic. There has been shifts on the supply side, as

the company started to focus on suppliers that were closer and less prone to possible disruptions. So, Vintage Bazaar has its selling strategy divided into two blocks, as it orders clothing production in Thailand and buys already manufactured items from Madrid, this last being the most significant nowadays. New collections are released every three weeks, every including both item types.

Regarding the points of sale, the company currently has four physical stores located within Portugal and an e-commerce platform that allows the company to sell worldwide. Its business is expanding, especially during the Pandemic, where the company was forced to completely change its business model and open the online website. Sales volume has been increasing over the years and international awareness, especially in Spain and France is starting to be built. Future projects are reinforcing the company's strengths, as the brand is making investments on upgrading the website, for instance. Further details of the company will be thoroughly explained in Chapter 4, a designated chapter to the Vintage Bazaar Case Study.

It is important to keep in mind that this project is under a logistic aim, more specifically focusing on improving the Last-Mile Logistics performance of the Vintage Bazaar company. To do so, the focus will be on an upstream critical activity of the supply chain – demand forecasting.

By the end of this project, it is expected that significant results regarding the company's financial and operational efficiency are felt and that the implementation of a demand forecast system can bring a crucial added value to the company.

1.2. Research Question

Based on the previously mentioned context, the question that will be addressed on this study will be as follows:

R.Q.: “Can a Demand Forecast System improve a Company's Last Mile Financial and Operational Efficiency Performance?”

1.3. Objectives

This project aims to study the alignment of the Vintage Bazaar “As-Is” business scenario with the company's most relevant business criteria pointed out by their employees. In other words, it is intended to study if the current business situation matches the company's vision and goals.

The main objective of this project is to study the effects of implementing a demand forecast tool could have on the company's profitability and operational efficiency. The point is to investigate if the demand forecast could serve as a decision-aid tool to guarantee a more accurate demand prediction to the board members when making orders.

It is important to note that this study purpose is not to implement an actual demand forecast system in Vintage Bazaar company, but instead to evaluate if that implementation's expected impacts would be beneficial to the company.

Within the previously mentioned main objective, other important goals have been set to achieve, such as:

- › Define the VB Supply Chain along its Major Constraints;
- › Conduct Semi-Structured Interviews with the Team Members;
- › Select the Criteria and Rank them according to its relevance;
- › Define and detail the different Scenarios;
- › Conduct a Focus Group;
- › Conduct an Interview with the company CEO;
- › Build the Macbeth System;
- › Perform a Robustness and Sensitivity Analysis;
- › Present Final Conclusions.

1.4. Methodology

To achieve the previously mentioned objectives, the project will follow several steps, as shown in Figure 1.



Figure 1 - Methodology Steps

The data gathering mentioned on the first step consists of a combination of both qualitative and quantitative data gathering. More specifically, qualitative information that has been collected through semi-oriented interviews with the company managers and major department's intervenients. This knowledge was crucial to understand the company's way of doing business and to build an accurate supply chain of the company operations. As for the quantitative data sources, the company's already installed ERP system was taken into consideration. This system works as a centralized data centre, as it

contains extremely detailed historical information of the company, in terms of volume sales, sales in liquid value, which were the items sold on each time interval, what are the most and least relevant product categories, product transfers between stores, inventory management tools, and other useful resources. This system contains information since the company first opened doors, so it will be a crucial information resource used throughout this study.

Then, as the second and third steps, the most relevant criteria to the company's business model will be pointed out, as well as its prioritization. This step is crucial, as it will serve as a base to later conduct the data analysis in Chapter 5.

The fourth step is to describe the Vintage Bazaar current Scenario, regarding its supply chain, major operations, and business model. In other words, this will include an overall overview of the company's current strategy. Later, two alternative business scenarios will be presented to serve as a comparison to the "As-Is" scenario. These will be built based on reliable information also collected from the already-mentioned ERP system and based on the future business prospects pointed out by the company managers. Nevertheless, it is important to note that both alternative scenarios will be ultimately created based on my personal analysis and will serve as a primary demand forecasting tool. The sixth and final step consists of conducting a focus group with a significant sample of the company staff, where the impact of the company "As-Is" Scenario based on the chosen criteria will be discussed. The point in this meeting is to gather consensual information about how the company vision and goals now are aligned with the brand business model. So, if the criteria prioritization in the early methodology stage can be identified within the company's "As-Is" business model. The information will then be analysed outside of the focus group and will serve as a basis for the methodological approach explained in Chapter 5 of this study.

1.5. Structure

To successfully answer to the proposed research question, this study will be structured as it follows:

- › **Chapter 1:** Introduction of the Project, where the context of the problem, a brief introduction of the company, the proposed research question, the objectives to achieve, the methodology to be followed and the project overall structure will be detailed.
- › **Chapter 2:** Literature Review including a brief contextualization on the Last Mile Logistics and Demand Forecasting concepts. Also, a description on Multi-Criteria Decision Making and, more specifically, on the MACBETH method which will be the major methodology used throughout this study.

- › **Chapter 3:** Research Methodology which will go into detail of the previously mentioned methodology steps and that will align the theoretical background present in Chapter 2 with the choices made on this project. This chapter will also include the application of the MACBETH system, including all the scenario and criteria list.
- › **Chapter 4:** Case Study including a more detailed description of the Vintage Bazaar company, such as its supply chain, major constraints, business model and other relevant information.
- › **Chapter 5:** Data Analysis and Discussion where the MACBETH methodology will take place.
- › **Chapter 6:** Conclusion where the final conclusions will be presented, given the study results analysis and personal perspective.
- › **Chapter 7:** Limitations where theoretical and practical constraints felt during this project are described.

2. LITERATURE REVIEW

2.1. Introduction

The prime objective of this chapter is to gather and arrange relevant theoretical research that can serve as a coherent ground base for tackling this study's research question: "Can a Demand Forecast System improve a Company's Last Mile Financial and Operational Efficiency Performance?".

This study research was conducted through an in-depth methodology, regarding the data base options, inclusion and exclusions criteria, used keywords, and number of articles analysed. The most used data bases were B-On, Scopus, EBSCO Information Services, Google Scholar, and the ISCTE master's Thesis Repository. As for the keywords choice, the most used word combination was "last mile logistics" and "fashion industry" or "retail industry" or "latest trends"; "demand forecasting" in "last mile logistics" or "supply chain" or "fashion industry" and "multi-criteria decision making". Also, the articles analysed went through inclusion and exclusion criteria defined throughout the filter options. The articles used as reference are mostly peer-reviewed English written articles from 2018 upwards. Articles focusing on last mile on activities with little or no relation to retailing were excluded, the same as for demand forecasting and multi-criteria analysis.

After building a consistent knowledge data base, the writing process began, and information was gathered and organised into two chapters. The core literature review chapter includes the information considered essential to conduct this study: Last Mile Logistics.

The complementary literature chapter goes beyond the last mile logistic concept and focuses on providing a general framework of other also important concepts that will be as well relevant to reach the conclusions on the already mentioned research question: demand forecasting and multi-criteria decision making.

2.2. Core Literature Review: Last Mile Logistics

The concept of last mile logistics has been an emerging research area with growing interest from scholars. According to Olsson et al. (2019), the oldest article found about this concept was published in the year 2001, which suggests that last mile logistics is a relatively new research area. However, this number has been increasing exponentially especially after the year of 2013, indicating an also exponential growing of interest towards this area.

But before going into deep on this subject, it is important to first understand properly what it means and to what context can be applied.

“Last Mile Logistics” does not comprise a simple or unique definition since it has grown and evolved with the corresponding changing environments and industries. Despite the differences between the existing definitions, last-mile logistics can frequently be associated with the last segment of a delivery process (Lim, Jin, & Srai, 2018) and the most crucial step in the distribution process (Srinivas S., Marathe R., 2021). More specifically, can often be described as the “process of planning, implementing and controlling efficient and effective transportation and storage of goods, from the order penetration point to the final customer” (Olsson et al., 2019).

In retailing, and more specifically in this Case Study, last mile logistics refers to all activities performed from the point of acquisition to the point of consumption (Hagberg & Hulthén, 2022). It implies to the most crucial part of downstream of the supply chain which is where retailers meet with the final costumer (Lim & Winkenbach, 2018). So, it can represent an opportunity to the business, but also be a threat to the company financial and operational efficiency. In fact, literature has shown consensual when considering the last mile is as the most expensive and least efficient aspect of a supply chain (Lim, Jin, & Srai, 2018).

On one hand and if managed efficiently, the last mile logistics can play a crucial role on the company’s overall operations performance as it directly affects the logistical costs, both economically and in terms of the customer’s perceived quality of the given service. In fact, literature shows that the last mile accounts for 13–75% of total supply chain cost, depending on a variety of factors (Gevaers et al., 2009).

On the other hand, and if managed ineffectually, it can also be a downfall for the company causing an increase of the logistic costs and, most importantly causing customer unsatisfaction.

Customers, specifically in markets with high competency and supply such as the fashion industry, must be in the centre of the company's business model, as they define and shape the company's philosophy, operations, or ideas. Especially today with the e-commerce development, customers have the most control over the purchase power, so it is crucial that companies can understand the customer centric strategy to be able to meet with their needs and expectations.

However, literature as shown that retailers are experiencing a conflicting new reality with the modern last mile demands as the population is growing exponentially, e-commerce is escalating, innovation and sustainability are increasingly core issues and customer behaviour is changing. Customers are seeking ever shorter delivery times, placing orders in small purchase quantities, having delivery time window constraints (Lim & Winkenbach, 2018), and ordering from a high level of dispersal of destinations (Mangiaracina et al., 2019). And especially with all the information and competitiveness online, if customers are not happy with what they are faced with, they are just one click away from other competitors that offer similar products or services. In other words, they are demanding the right product, in the right place at the right time and companies can either adapt or will not survive.

So, companies must be keen on this topic, as it could be a very important opportunity to get a sustainable competitive advantage towards their clients, and their competitors, while highly benefiting the company.

After acknowledging the company's supply chain, it became evident that the Last-Mile Performance, is highly affected by a more upstream side of the supply chain – the Demand Forecasting. Every action has a reaction and the first takes place on the upstream side.

2.3. Complementary Literature Review

2.3.1. Demand Forecasting

In the last few years supply chains in general and last-mile logistics in particular, have increasingly been prone to disruptions on the supply side, demand side and the transportation and distribution processes (Srinivas S., Marathe R., 2021). Though many innovative last-mile solutions have been proposed in the past to bypass these negative situations, certain limitations are keeping the need for proposing alternative solutions.

However, most of the solutions presented throughout these perspectives are focused on the final node of the supply chain, such as changing or proposing new last-mile solutions such as crowdsourcing logistics for B2C e-commerce (Carbone et al., 2017; Seghezzi et al., 2020), drone deliveries in urban

centres using the public transportation capacity (Moadab et al., 2022), pick-up points (Masteguim & Cunha, 2022), bicycle courier services (Tallyn et al., 2021), or mobile warehousing (Srinivas S., Marathe R., 2021), for instance.

Nevertheless, to get to the bottom of the problem and increase overall performance in this downstream side of the supply chain, which is referred to as the last mile, companies need to focus also on a more upstream side of the supply chain - the demand side.

Demand forecasting, especially in fast-fashion apparel, focuses on predicting future trends or patrons of consumption based on historical data, to assist future managerial decisions. And given the unpredictable tastes and trends of the consumers, the difficulty of finding accurate historical data, the variety and quantity of the products in stores, and the high competitiveness caused by the frequent price changes and promotional activities, demand forecasting is a rather complex task in this industry (Yesil et al., 2012). In one hand, if demand turns out to be higher than the company's stock quantity for a product, stockouts will happen, resulting in lost profit and unsatisfied customers (Yesil et al., 2012). But, in the other hand, if demand turns out to be lower than the company's stock, an excess of stock will take place, resulting on captive capital for the company.

For these reasons, demand forecasting has become a major issue for fashion retailer companies because it plays a crucial role on the last-mile logistics final performance, and, consequently on the final performance and outcomes of the entire supply chain. According to most authors, demand forecasting has been studied through management efficiency and customer satisfaction (Chen et al., 2022). But, in this study, it is proposed to tackle the demand forecasting outcomes on two fundamental concepts in today's fashion retailing businesses: operational efficiency and financial performance.

This is possible because Vintage Bazaar has invested in an Enterprise Resource Planning (ERP) system since the very first day of operation which stores and monitors all the historical information related to the sales, product availabilities, inventory, stock management and product referencing. Hence, this system consists of a great base for building a demand forecast system which could be used as a management tool when placing orders to suppliers, and most importantly in predicting the item's quantities.

2.3.2. Multi-Criteria Decision Making

In the past decades, several researchers have studied the use of Multi-Criteria Decision Making (MCDM) methods in solving decision-making problems in several types of industries (Kao et al., 2022).

According to Tzeng & Huang (2011), decision-making when considering a single criterion problem is extremely intuitive, however, when the decision-making process evolves multiple criteria, conflicts usually arise, originating the need to use more sophisticated methods.

Hwang and Yoon (1981) classified the MCDM problems into two main categories: multiple attribute decision-making (MADM) and multiple objective decision-making (MODM), according to the number of predetermined alternatives. The first problems involve making decisions between a predetermined and limited number of decision alternatives, whilst the second are usually associated with an infinite number of alternatives (Kahraman, 2008).

The problem addressed in the current project is defined by a limited number of alternatives and criteria, therefore, only the Multi Attribute Decision Making, MADM, will be considered. The referred alternatives will be addressed as the scenarios, that are described further in Chapter 3.

The classification of MADM methods is not consensual in the literature review (Ridder 2004; Figueira et. al 2005; Pohekar and Ramachandran 2004), therefore a classification by the proposals is suggested for this study, as shown in Figure 2.

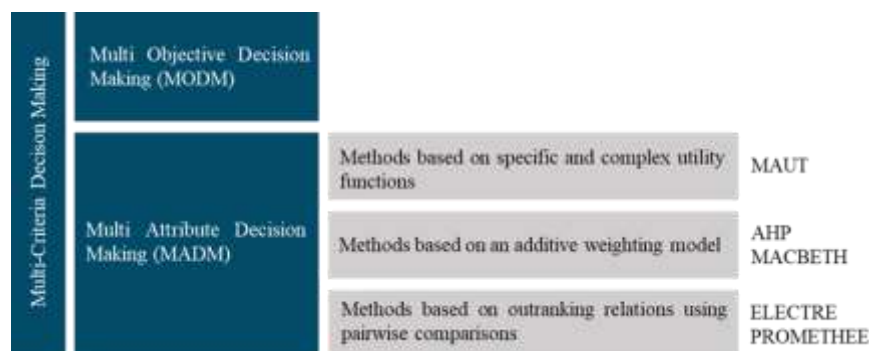


Figure 2 - Classification of MCA Methods

According to Kahraman (2008), MADM can be categorized into three classes, represented in grey in Figure 2 above:

- › Multiple-Attribute Utility Theories (MAUT).
- › Additive weighting models, also known as SAW, where the Analytical Hierarchy Process (AHP) and Measuring Attractiveness by a Categorical-Based Evaluation Technique (MACBETH) stand out.
- › Outranking methods including Elimination and Choice Translating Reality (ELECTRE) and Preference Ranking Organization Method for Enrichment Evaluations (PROMETHEE). According to Mary & Suganya (2016), the first, takes input from multiple stakeholders using a 100-point method, and gives an optimized ranking as a result. In fact, ELECTRE method is

widely used to discard alternatives to the problem, which are considered unacceptable. PROMETHEE, on the other hand, aims to provide the decision maker with a definition of preferential parameters to support the decision maker with the most suitable working hypothesis.

Therefore, present work will focus exclusively on studying the additive weighting models since it is known as the simplest model and probably the most widely applied (Rasiulis et al., 2015; Von Winterfeldt and Edwards, 1986).

2.3.3. Additive Weighting Models: AHP vs MACBETH Method

The analytical hierarchy process (AHP) and the Measuring Attractiveness by a Categorical-Based Evaluation Technique (MACBETH) are the most popular additive weighting models. These methods are based on a series of pairwise comparisons among the competing attributes, allowing for the simplification of the attributes weighting problem.

Both approaches have similarities and differences. More specifically, their major difference is in the type of scale used by the decision-makers to point out the importance of each attribute. The AHP method uses a ratio scale, where the linguistic language importance can be translated to a numerical scale of importance, whereas as on the MACBETH system, the scale comes in intervals, to produce mathematically significant results. Apart from that, both methods can summarize the decision-maker's relative weighting results into a pairwise comparison matrix. Based on that, the importance is calculated for each attribute, resulting in a ranking of each attribute's importance to the overall objective of the study.

Appendix 1 shows that the SAW methodology has been widely applied within the fashion industry, but mostly through the AHP method. However, it has been studied that the MACBETH method can be used alternatively to the AHP (Guarnieri & Trojan, 2019). Yet, there has not been found any research specifically conducted through the MACBETH method in the fashion retailing industry. So, after identifying this gap in the literature, this project proposes the MACBETH system as methodology to conduct the studies. This is mainly because of three reasons:

- › **Reason 1:** This method was found to be the simplest when turning the qualitative data from the interviews and focus groups into quantitative one.
- › **Reason 2:** It can be widely used throughout the most different sectors, including day-to-day decisions.
- › **Reason 3:** According to (Bana e Costa et al., 2017) this methodology is the only that needs qualitative judgements about the difference of attractiveness between two criteria at a time to

generate numerical scores for each criterion and to weight the criteria. Also, it provides a set of tools that resolves inconsistencies as they arise and provides both sensitivity and robustness analysis after the model has been constructed.

2.4. Conclusion

The intention of this chapter is to provide a reliable theoretical context about all the critical concepts that will be further tackled throughout this study to bring conclusions regarding the financial and operational efficiency of the company's last mile performance.

To do so, the literature review started with a description of this study's core concept: Last Mile Logistics and its connection with other considered critical concept to the overall understanding of this project structure: Demand Forecasting. Given all the information gathered from the previous studies, the literature gap was identified, and the multi-criteria analysis was proposed as this study's research methodology.

Now and after all the theoretical aspects were supported, it is intended to move towards the more practical stage of this project: the methodology. Here, it is expected to swift the "what" and "why" questions to practical answers.

3. RESEARCH METHODOLOGY

3.1. Investigation Methodology

As previously mentioned, the present project follows an in-company project form, since it aims to solve a specific problem inside the Vintage Bazaar Company.

The proposed methodology for this study is a Mixed Methodology between qualitative and quantitative data gathering, as it will be further explained.

3.2. Methodology Steps

3.2.1. Data Gathering and Analysis

(0) General Information

As mentioned in Chapter 1, the first step consists of gathering all the crucial data and proceed to analyse it.

To gather the first impressions and overall view of the company's business model and operations, qualitative data was collected through semi-formal interviews with the company CEO, General Manager and Ecommerce Store Manager. The collected information was proven crucial to build an accurate supply chain of Vintage Bazaar which is further described in Chapter 4. The interview questions can be consulted in Appendix 2.

On top of the information gathered through this interview, the personal experience with customer and with the final node of the supply chain was crucial to get a complete understanding of all the key elements that build the essence of the Vintage Bazaar business. Nonetheless, qualitative data gathering included information gathered through a focus group that was further conducted, as it is described in Chapter 5.

As for the quantitative, data was gathered through the ERP system, called "Eticadata", which was able to provide all the important data from the day the company entered the market. This system has been storing and monitoring all the historical information related to the sales, in quantities and profit of this company. Also, this system is directly connected to the point of sales systems, enabling the office to gather all types of information regarding the products that have been sold in a specific date, store or period, the exact stock of items that are in the warehouse and stores, which are all extremely useful information to answer to this study research question.

It is relevant to add that the year of 2022 was chosen as a temporal reference to most of the data collection, since it represents a complete and the most recent and complete overview of the Vintage Bazaar business scenario.

The 2022 Vintage Bazaar major collections were composed by both flash and exclusive items. More specifically, each collection had a variety between 5 and 6 flash items, each variety with an approximate stock of between 30 and 40 units. Regarding to the exclusive items that completed these collections, a variety of around 25 to 30 items were integrated, each with a stock of between 20 and 30 units. This means that every collection had a 4/19 proportion, where the highest percentage holds the exclusive items. However, these numbers are only indicative, as they represent only averages.

Adding to these main collections, the year of 2022 came with something different: a new collection concept – the Happy Day – which is a collection made exclusively to the online store. For this collection a total of about 25 to 30 pieces are chosen, all exclusive items. Each variety is ordered with a stock of about 15 units, to get the customers the impression of exclusivity and limitedness of the offered products. The idea was to reinforce the e-commerce platform and give the customers who live further from the VB physical stores an opportunity to also be a part of something especially designed for them, since they cannot often take advantage of the complete brand experience and essence.

For internal organizational purposes, these items started to be organised into categories and each into subcategories since February 2022 by the logistics department, therefore only the items that were bought from suppliers after that period were put into their respective category. Consequently, the items that were bought from the company prior to this data are not characterized, and consequently, that appear on the ND category, meaning the non-defined category. This organization is structured as it follows:

- › Family 01 – Clothing: including blouses, shirts, tops, sweaters, jackets, dresses, jumpsuits, shorts, trousers, skirts, kimonos, ponchos and non-defined.
- › Family 02: Accessories: including belts, necklaces, earrings, hats, écharpes, scarfs, bags, pareos, bracelets, and the non-defined items.
- › Family 03: Décor which is non subdivided into categories.
- › Family 04: Shoes: including boots and sandals.

In order to follow to the next steps proposed on the methodology, especially for building an accurate “As-Is” scenario, information about the product’s rotativity (1), individual store growth and respective quantities in terms of units sold and in liquidity (2) as well of an analysis of the item’s valuability – ABC Analysis - were considered essential (3), quantitative speaking, to proceed building this scenario. Therefore, a Sales Analysis from the year of 2022 including all the stores, both physical and online, was extracted from the ERP system, as shown on Appendix 3 – General Sales Analysis in 2022.

(1) Product’s Rotativity

As it can be seen in Appendix 3, some limitations have been found through this data collection, namely limitations related to the already-mentioned recentness of the product categorization process. Nonetheless, calculations about this rotativity did not include the ND category for simplicity purposes, since it is not possible to track neither identify what those products might be. Simple calculations of direct proportionality were made, therefore not included in this study appendices.

Conclusions were that the most rotative items in terms of quantity were part of the “clothing” category and more specifically were the dresses with a percentage of about 18%, followed by the pants accounting for about 10% of the total items sold in 2022. On the contrary, the least rotative category was the décor, representing only 0,1% of the items sold in that year.

(2) Individual Store Growth in Quantity of Sales and Liquidity

To take conclusions on this specific measure, a time period of 3 years was considered to give a more complete sample of what the evolution of each store is. So, the evolution of units of quantities sold and its respective liquid value will be calculated between the years of 2020 to 2022. The calculations were made by applying the simple percentual increase formula, both to the units sold and respective liquid value.

The Vintage Bazaar e-commerce platform has been evolving over the years and currently holds a critical advantage to the company’s overall sales and profitability. In fact, and as it can be seen on Appendices 4 and 5, the online store had an increase of about 44% in liquid value of sales and of 103% in quantity of items sold from the year 2020 to 2021. When comparing to the year of 2021, the 2022 sales in volume dropped to a negative 2%, while increasing by 8% liquid value, as it can be seen on Appendix 6. Nonetheless, it is relevant to add that, this drop still means that the online channel is the most representative of all the VB stores in terms of financial liquidity.

Regarding the physical points of sale, the store in Santo Amaro de Oeiras, which is the most well know and also the first point of sale to open, had an increase of about 29% regarding the quantities sold and of 19% regarding the liquid value from 2020 to 2021, as it is shown in Appendices 7 and 8. Concerning the evolution from 2021 to 2022, the numbers pointed an increase of 65% and of 58% in quantities sold and in liquid value, respectively as it is shown on Appendix 9.

The store located in Chiado, from 2020 to 2021, had an increase of 17% in quantity sold and a decrease of -4% regarding the liquid value. From 2021 to 2022, the respective percentages grew to 77% and 58%. These information’s were supported by the data shown in Appendices 10-12.

Lastly and in what concerns the store in Porto, which only opened its doors in 2021, had an increase of 131% in quantities sold and of about 124% in liquid value, when comparing to the year of 2022, as it is seen on Appendices 13 and 14.

(3) ABC Analysis

The last step to properly define the company's "As-Is" Scenario, based on the quantitative data, is the ABC analysis. This analysis comes from a highly known rule, the 20/80 Pareto Rule, that claims that 80% of the results come from 20% of the causes. And it's major advantage is that can be applied to widest issues or situations. So, in this study proposes to apply the ABC analysis with a two-way intention: firstly, to find out what are the most and least valuable items, in terms of liquidity to the company's "As-Is" scenario, and secondly to serve as an accurate quantitative base to learn what items should the company invest on the near future - for the 2nd scenario described ahead.

This analysis consists of prioritizing the most and least valuable items to the company, based on what return (either in sales or value) they give to the company. The most valuable items will be categorized as A items whereas as the least will be categorized as C items. Naturally the idea is that the company, when in doubt, prioritizes the A and B products, instead of the C, that are proven to be less valuable to the company.

This analysis was conducted based of the item's value, more specifically, liquid value, rather than in quantity because the focus of every business, including Vintage Bazaar, is to increase the revenue and profit. For instance, if the quantity was accounted, the VB company would probably have the paper bags as the A product, since almost all the customer's request a bag to keep their purchases. But, in terms of value, this item does not add any value for the company, since it's price is low and is intended only to cover the suppliers' expenses, and not to make any relevant profit. So, the idea with this analysis was to always prioritize value, more specifically liquid value, to eliminate the discounts variable.

Also, for this analysis, not all the products were included (actives, discontinued and future), only the active products, due to the data availability and simplicity reasons. The data resulted on a collection of all points of sale, meaning the physical stores (Santo Amaro de Oeiras, Chiado and Porto) and from the e-commerce store, that can be found in Appendices 15 – 29. It is relevant to note that the total shown on these appendices does not match with the total of the columns sum on excel, due to a Category named "Services", which represents data that is not related to any product category, hence, it is not relevant to this study.

Given that the fashion industry is constantly changing, data was collected through collections, and not time. A total of 15 collections was considered, starting in the end of July 2022, and finishing in early February of 2023. Also, data was gathered through product family, as it was already described previously on this chapter. The data was arranged in a table, using Microsoft Excel, as it can be seen in Appendix 30.

Then, a pivot table was made to rank the product's categories according to their revenue to the company. Also, quantities were accounted to validate the Pareto Rule, previously mentioned. This table can be found in Appendix 31, already showing the most valuable (A products), intermediate (B products) and least valuable (C products) for the company, in term of revenue.

A more concise table was built, as it is shown above, where the main conclusions were taken.

Code	% Revenue	Number Items	% Items
A	40%	2	7%
B	80%	6	21%
C	>80%	21	72%

Table 1 - Percentage of Most and Least Valuable Items

The two products included into the Code A, are dresses and jackets. The B products are blouses, pants, skirts, sweaters, jumpsuits, and shirts. As for the C products, the boots, tops and purses were included, amongst others.

The most relevant conclusions of this analysis are that:

- › Code A indicates that only 7% of the items provide Vintage Bazaar with 40% of value.
- › Code A + B translates that 21% of the items correspond to 80% of value.
- › Code A + B+ C show that 72% of the items correspond to 20% of value to the company.

These results, adding to the topics (1) and (2) will serve as a qualitative ground base for completing both the “As-Is” Scenario description and the alternative scenarios further presented.

3.2.2. Define Criteria

Originally there was a list with some important criteria that were judged as relevant to include in this study, however, given the criteria independence criteria required by the MACBETH system, the most relevant criteria pointed out from my perspective is the following:

- › **Brand Concept**, including the product exclusivity, brand visibility and all the concept and lifestyle that the brand represents. This was considered decisively relevant because, nowadays

and given the company's current business model, the customers can buy equivalent products in other stores, nevertheless most still choose Vintage Bazaar. Here they have a highly personalized customer service combined with a very cared display and décor of the store. There is a very thorough mindfulness, ranging from the position of the racks to merchandising the products by colour and patron. Every week the stores are given a complete makeover, including changing the window displays with the new collection items for instance. In fact, and by the customers words that were received via email, "...Vintage Bazaar is more than a clothing brand, it's a concept...".

- › **Speed of Delivery**, considering that clients are demanding everything faster and more conveniently. Convenience is key, and with the increase of the e-commerce platform, the company was forced to invest in an upgrade with their partnering distributors to pick and deliver the packages between 24 and 48h in mainland Portugal. And the customers notice that. As one wrote, "...order received in record time!".
- › **Service Quality** since it has proved essential to the customer's building perception of the company, especially in this turbulent emerging business. In fact, many studies have highlighted the outcomes of having a good service quality: improving market share and sales, increase customer satisfaction and brand loyalty (Chen & Goh, 2019). In customers words written in March and sent via email, stated: "(VB)...it is indeed a special brand, made of special people, where attentiveness to the customer is everything.... I loved hearing a little more about the history of VB".
- › **Cost** which, even though is interconnected with the already-mentioned criteria, is considered a decisive element in the clients purchase action. Also, this cost, which is presented to the final customer, is directly associated with cost of suppliers. If suppliers alter their price's structure, Vintage Bazaar would be in a position where their prices for the final customers would also have to alter, respectively. This is because the brand works with a specific profit margin, and any alteration on the supplier's side would impose an alter in the customer's final price.

3.2.3. "As-Is" Scenario

It is referred as "As-Is" scenario, the company's current state of operation, including an overall perspective about the business model, supply chain, major activities, constraints, operations, and investments.

It is important to note that this scenario will serve as a comparison scenario when conducting the Macbeth methodology in the company's focus group, so its detail and accuracy were prioritized. Also, the history and evolution of the company will be further described on Chapter 5.

This scenario will emphasis on detailing the Vintage Bazaar current business situation, based on the most relevant qualitative and quantitative data gathered on Step 1 of the Methodology.

Regarding the suppliers, VB counts with a variety of suppliers from all over the world, depending on the items category. For the signature items, also referred as flash items, the supplier is in Thailand. The relationship was maintained during the pandemic, since the orders started to be placed via online, avoiding going in person. For shoes, the company recurs to a Portuguese or Italian supplier, for bags an Italian and for fabrics the company goes to Marrakesh. For the exclusive items, the company must go in person every two weeks to hand-pick the pieces that are to be included into the new collections. However, the relationship is strong, and they keep in touch almost every day to ask for more units or more information.

The company currently has five points of sale, four being physical stores and one, the e-commerce platform that sells throughout the world. To support the stores, there is a central warehouse located in Santo Amaro de Oeiras, right above one of the stores. This warehouse is a central point on the company's supply chain since it is where all the merchandise arrives and gets out ready to be sold. The major activities that happen there are the item's picking, labelling, referencing and quality control.

After the items are ready to be sold, they are transferred to the stores. These stores have suffered significantly changes in the last couple of years, due to the covid-pandemic that forced the company to reinvent itself.

Referring to the year of 2022, the major collections were released every two weeks, and most recently three, with some exceptions. These collections were composed by both flash and exclusive items and were later in the year, interspersed with the "Happy Friday" collections. These collections have been giving a boost to the online store, and to the company's overall profitability. In fact, and as previously mentioned, the online store was the most profitable in terms of liquid value and in quantities sold, when compared to the other stores. Yet, it has a great margin of improvement and represents the highest investment in the current business model of the VB company. Just now, the company signed with an outsourced digital marketing company, to enhance the online e-commerce platform and it is the social media engagement in the most various social media platforms.

Also, in terms of profitability, Santo Amaro de Oeiras Store has also been presented as a crucial asset to the company, being the most profitable physical store of all three.

In what concerns the product's rotativity, the most sold items are dresses and pants, being the dresses, as mentioned in (3) ABC Analysis, the most valuable item category for the company. Also, the jackets category, has proved to be highly profitable for the company during the past 15 collections.

Overall, in 2022, Vintage Bazaar has been able to sell out its collections, the stores have been profitable, the distributors have been managing to deliver the packages on time, the customers appear highly

satisfied, and the scenario is indeed very promising. Nonetheless, stores felt a lack of planning – demand forecasting – especially during the summer collections. When it came to certain items, more specifically shoes, stores felt a difficulty in either sell out the stock or to manage the little stock that was available, resulting into weeks of waiting for the supplier to delivery another shipment. This last scenario kept some customers waiting for almost a month and forced others to quit their reservation and buying in another store.

3.2.4. “Alternative” Scenarios

3.2.4.1. 2nd Scenario:

This represents a hypothetic scenario built based on multiple factors: feedback gathered from the most loyal Vintage Bazaar customers, insights from the already mentioned focus group and based on the personal experience and knowledge of the brand. This scenario would include:

› Central Warehouse

The first assumption on this scenario is that a different central warehouse, that would most suit the company’s storage and inventory need, is considered. This is because, with the company’s growth over the last couple of years, adding to the already mentioned increase of exclusive items, a lack of space has been felt. The space has been optimised for storing folded clothes (flash items), but now the business model has changed, and the exclusive items come in hangers and must be storage that way, to avoid damaging the clothes. And, despite having made alterations, the storage is not enough for the current volume of the business, and will not be in the future, with another store just opened in 2023.

› Pickup Points

The second assumption is to take advantage of one of the newest and most convenient services offered by the company’s distributor. Given the close relationship with CTT distributor, Vintage Bazaar could offer to its clients a new option to deliver their orders in a much efficient, convenient, and less costly for the company and the final customer: pick up points. This option is believed to suit the customer needs better, as it provides schedule flexibility, convenience, and most of all, reduction of the shipping costs.

› Focus on Flash Items

Customers feedback indicate that the exclusiveness of the Vintage Bazaar most iconic models and prints are becoming more and more valued. Also, they are enjoying the quality of the cotton and the history besides the design of those pieces. Recent collections have been selling out these flash items, which indicates that the brand could invest more in designing different models and prints for each collection.

Instead of having just one print in two colours, to have two distinct prints, also in two colours. This would, first, satisfy the demand, increase brand exclusivity by presenting more clothing designed by the brand and, second, would empower the margin that the brand has over these pieces. When comparing to the exclusive items, that come from Madrid, the margin of the flash items grows exponentially.

› Focus on A Products

Given the previous ABC analysis, it is known that the most valuable items (A items) sold in Vintage Bazaar are “Dresses” and “Jackets”. This means that the company should start investing more effort, money and resources on manufacturing or ordering these products categories. All collections, in this scenario, would include not one print of dresses, but two. This would mean that the quantity of dresses would double in which collection. Also, with the GW event being done more regularly, the risk of not selling these products would be buffered.

› Green Week twice a year

Green Week is the most influential event of the Vintage Bazaar company, and only happens once a year. It is an online stockout event that usually has a one-week duration, where pieces from the previous collections and that did not sell during the year, are available to the customers at an extremely low fixed price.

This event represents a huge opportunity for the company to sell its old stock, or the stock that has little quality defects, while making profit with it. Customers are also provided with a unique opportunity to get Vintage Bazaar items at an extremely competitive price.

Due to its high logistical complexity, it is only made once a year, but in this scenario, it is proposed to be done twice: once in March (for spring and summer collections) and other in September (for autumn and winter collections).

› Turning Suppliers into Partners

Instead of relying on five or plus suppliers, none being exclusive nor depended on Vintage Bazaar brand, this scenario proposes VB brand to focus on turning those various suppliers into fewer partners. The idea is to work along with the suppliers, as a network, and as a result give a step further into economies of scale. More specifically, what is proposed in this scenario is that the number of suppliers is reduced so that the costs also decrease. By relying on fewer suppliers, Vintage Bazaar would automatically place larger orders, even more with the scenario of the Green Week happening twice a year and by focusing on the flash items, which always imply ordering in larger batches, while lowering the costs. These would be distributed over a larger number of goods, putting the Vintage Bazaar brand, into a more competitive position on the market.

3.2.4.2. 3rd Scenario:

Similarly, to the previous scenario this represents a hypothesis build on data gathered from customers, in-company employees and on my personal knowledge and opinion on what could be the medium-term future of the brand. This hypothesis includes:

› Invest in a Distributor for Orders Worldwide

More specifically, to partnership with a different distributor to assure the deliveries outside continental Portugal, where the company is not achieving the minimal standards of the speed of delivery. And by signing a contract with a more proficient distributor and with a greater worldwide market presence, the possibility of aggregating orders would finally be available. This would benefit the company in space and resources optimization, operational costs reduction, and in creating a smoother and more effective supply chain.

› Launch a Special Collection Line

The fashion apparel industry is often characterized by small collections and high rotativity of products. So, this scenario proposes Vintage Bazaar, adding to the already big collections every three weeks, to create premium small collection, where a new look was launched every month. The idea is that the clothing pieces are capsule pieces, meaning that they should be intemporal and easy to mix and match withing the various looks launched over time. With this possibility, it is intended to create a new concept withing the brand and with it, reinforce the concept of brand exclusivity. Also, manufacturing customized Vintage Bazaar products, such as scarfs, with the company logo would be included.

› Increase Brand Scarcity Effect

With the last hypothesis described above, it is desirable to increase the scarcity effect by only having available about 20 units of each clothing piece on that Special Collection Line. The idea is to create the image of exclusiveness of the brand and, unconsciously, create the habit in costumers to be more attentive to the collections launches and social media engagement, whilst increasing brand visibility. Also, in these Special Launches, the model would be different: the company would hire fashion influencers to the collection marketing.

› Invest in Green Sustainability Policies

The idea is to stop selling paper bags and only offering tote bags, made in Portugal and by recycled cotton. Different sizes could be available, such were the paper bags, to the customers convenience whilst carrying its purchases. Apart from the obvious eco-friendly benefits from using this new alternative,

another benefit arises: free advertising to the company. With these alternatives, people tend to reuse most tote bags, even in a daily basis, either it is to shop in the Vintage Bazaar stores, but also in the supermarkets, while traveling, to the beach, or just to carry as a purse. Actually, there is already a trend for these cotton bags, and the company would only benefit from having them, especially if they customized a bag for each season, with the most famous prints, apart from the logo.

3.2.5. Focus Group

On the 21st of march, a focus group was conducted with the goal of adding qualitative relevance and reliability to the multi-criteria analysis performed on Chapter 6. More specifically, and given their individual experience in the company, gather important information on how this group of people view and think of the Vintage Bazaar operations, it's major constraints and opportunities and most importantly, get their perspective on what are the most and least relevant criteria in this business. This interview accounted with the presence of six elements. All these elements were believed to add significance to the matters discussed, as they represented the various departments throughout the company. A representation of the elements that took part in this focus groups, as well as their job description and reasons why they were believed to add value to the group conclusions, are represented in the table below.

Interviewee	Job Title	Job Description	Added Value
A	General Manager	Manages overall operations of the company and assures all departments are properly aligned and functioning. Manages staff, oversees the new projects, maintains the relation with the suppliers and others. Reports to the CEO.	Broad experience and knowledge of the brand Awareness of all company's projects and departments developings Close relationship with all parties involved Makes managerial decisions when the CEO is out of office
B	Administrative and Financial	Supervises and maintains financial and administrative records as well as monitoring systems to record cash flows, payments, statements and other data for day-to-day transactions and reports.	Awareness of the overall financial situation Relationship to suppliers Management of company's internal and external resources
C	E-commerce Shop Manager	Manages and delegates work through all the e-commerce department. Responsible for customer support, controlling sales, and assisting in the creative process (shootings, products descriptions, developing of the website).	Experience in both online and in-store projects Awareness of major online operational constraints Point of contact with company's distributors Close relationship with the final customer Creativity and marketing knowledge
D	E-commerce Shop Assistant	Specialized on customer support. Manages all the social media engagement, emails and messages sent from the customers.	Broad experience in customer support Knowledge of the consumer point of view
E	Store Manager	Responsible for overseeing the daily operations of a store, making sure it runs smoothly and effectively. Apart from selling, is the first person responsible for the training of the new stores staff.	High experience with customers Specific training in the fashion industry Knowledge of the business, creativity, marketing and pro-activity
F	Logistics Manager	Responsible for ensuring the first part of the supply is efficient and effective. Organizes, labels, controls quality, stores and distributes to their appropriate destinations.	Awareness of the major operational constraints Management stock entrances and exits Sense of creativity

Table 2 - Participants with Respective Job Title and Description

This specific number of elements was chosen because it was believed to cover the most experienced and opinionated workers on the matters discussed on the gathering. It is important to add that this focus group is a form of qualitative data gathering and does not serve as representative nor statistical data.

Regarding the focus group structure, a set of questions, that were thought ahead, were asked to lead a path for the participants so that they were prepared and acknowledgeable to take the final conclusions. Also, a set of visual techniques and language was used during this session to stimulate the participants and encourage them to have a higher engagement. In what concerns the language, it was totally informal to match the team's best way of working. The focus group was called "Vintage Bazaar Cooking Session" to incentive every participant to contribute with an important ingredient to make the final conclusions and ideas more "appetizing". The idea was to give the traditional focus group a twist, also typical of the Vintage Bazaar company, and make all participants more comfortable and stimulated during this session. Regarding the visual techniques, a set of cards, each with keywords, was made for specific questions, to power the group interactions.

3.2.6. Step 6: Results Analysis

The session took a total of 45 minutes and permission was asked to record the conversation, whilst maintaining the anonymity of the participants names. During this time, a set of 9 questions was made, as presented as it follows.

- › **Question 1:** “What do you think are the processes or activities that are critical for Vintage Bazaar to function as the business and company that it is?”

For this question, a set of cards with already written keywords above was presented and, in group, the results were as it follows.



Figure 3 - Participants view of Vintage Bazaar Supply Chain

As it is possible to see, major importance was given for the promotion activity from almost every interviewee. The design was also considered important, but in comparison to promotion was least voted. Then, it was interesting to hear the participants talking about the planning activity, which became clear, right in the start, that was a problem to this company.

“But this one (planning), in my view, is where we sin most. This is where there is the biggest failure.”

– Interviewee A

Little importance was given to the other activities, so the second question was asked.

- › **Question 2:** Given these chosen activities, could you build the sequence of activities that best describes this company?

The intention of this question was to understand where, in space, the participants located the beginning and end of the company’s supply chain. The results were as it follows:

Interviewees	Promotion	Design	Suppliers	Planning	Storage	Distribution	Quality Control	Client	Quotes
A									"For me it's not just promotion ... it's communication ... what you can do with communication, which is creating value ... a collection that is standard ... now has a character and a concept that is transmitted through promotion, through design."
B									"... I think everyone comes to this (planning) ... I have to plan in relation to the supplier, how am I going to control the quality, how am I going to do the distribution ... that is, this is all super important but this is all within good planning."
C									"It's critical that we have the product ... but then we have to invest in how we pass it on to the clients, and how we promote it ... Ultimately about promoting, and presenting to the world what we are."
D									I think what distinguishes our brand are the shootings. Because that's what promotes and creates the dream! ... We can have great products, but if we don't promote them, they won't get anywhere.
E									"All are important. But if this (suppliers) is not a winner, and if they are just half a dozen of clothing pieces, not interesting or equal to what is already on the market, none of this is going to make the company to thrive."
F									"I think it's no use having a supplier, if you don't have a vision. (...) People don't want to buy clothes, people want to buy Vintage Bazaar."

This sequence was built majorly by Interviewees B and C and was rapidly consensual through all participants.

› **Question 3:** Now taking these supply chain, planning and logistics concepts. What do you think contributed to the success of Green Week, in practical terms?

The immediate responses were:

Table 3 - Critical Activities of the VB Company by Interviewee

"We planned." – Interviewee E

"In advance." – Interviewee D

"And with experience." – Interviewee B

Throughout this question, and by including the practical concept of the Green Week event, it became evident that all participants acknowledged a connection between planning and the outcomes. There, the conceptual names of last mile logistics and demand forecasting were introduced, as well as their importance in the companies supply chains, especially in the fashion apparel industry.

- › **Question 4:** If you were to relate and weigh these two concepts, even though they are separated by all the other processes you have already identified as critical, how would you do it? Do you think they are not related at all, a little, or very much?

All participants agreed that demand forecasting and last mile logistics were extremely related.

- › **Question 5:** Thinking about a large company in the fashion industry: Zara. Do you think that, to have the results they have, efficient last mile logistics, they invest in finding out exactly what customers want and will buy, demand forecast?

“Yes. Absolutely... And not only Zara. If you go to Stradivarius or Mango, the trends are all the same...”.

- › **Question 6:** Now, do you consider that Vintage Bazaar invests in demand forecasting when choosing and buying the products?

All participants agreed upon the fact that Vintage Bazaar does not have nor invest in any form of demand forecasting when going to suppliers to choose the models, colours, patrons nor trends. In general, and according to interviewees D and E, the company “... *has a lot to improve*” since it goes “*very much by intuition*”, respectively. For the specific event of Green Week, interviewee A also stated that “... *there is a need to demand forecasting*”.

After being identified that there was no demand forecasting, the “why” answer arise.

“What we need is time to implement this demand planning... That is, planning always must be associated with a chronological timetable. And that is what is missing”. – Interviewee A.

Here, the lack of space was also mentioned as a supported reason to this lack of forecasting.

Interviewee F then gave an opinion on about how Vintage Bazaar could start implementing a way of demand forecasting, that soon came to everyone’s agreement: “*we simply can’t wait for the trend. When you go to Zara or Mango, the trend is already there. We are late: we must go to the events and vogue fashion week to see and anticipate these trends. For example, now the trend is denim, but the trend started to be denim about two months ago. And we still don't have the denim trend in our company*”.

- › **Question 7:** What would be the pros and cons of implementing this demand forecasting in Vintage Bazaar company?

Prior to the answers, a set of antagonise cards was put onto the table, this being:

- Overstock / Shortage of stock

- Higher costs / Lower costs
- Satisfied customers / Dissatisfied customers
- Efficient space management / Not efficient space management
- Company Growth / Company Stagnation
- Higher Brand Visibility / Lower Brand Visibility
- Increased possibility of partnerships / Decreased possibility of partnerships
- Decreased process time / Increased process time
- Higher product quality / Less product quality
- Operational efficiency / Operational Inefficiency

From these cards, only some were mentioned, and identified as pros or cons:

	Pros	Cons
Stock	X	
Lower Costs	X	
Company Growth	X	
Brand Visibility	X	
Partnerships	X	
Satisfied Customers	X	
Space		X
Quality		X
Operational Efficiency	X	

Table 4 - Identified Pros and Cons

These results point towards a situation where the benefits surpass the disadvantages, meaning that the group has shown interest and identified the demand forecasting activity as a much-needed process in the Vintage Bazaar company. And potentially, pointed this activity as a solution for most of the operational problems felt, and for the time managing related activities.

› **Question 8:** If you had to describe Vintage Bazaar in only one word, what would it be?

For this question, each participant was given a blank card in which the word should be written. The cards were shown after all had finished and the results were the following:

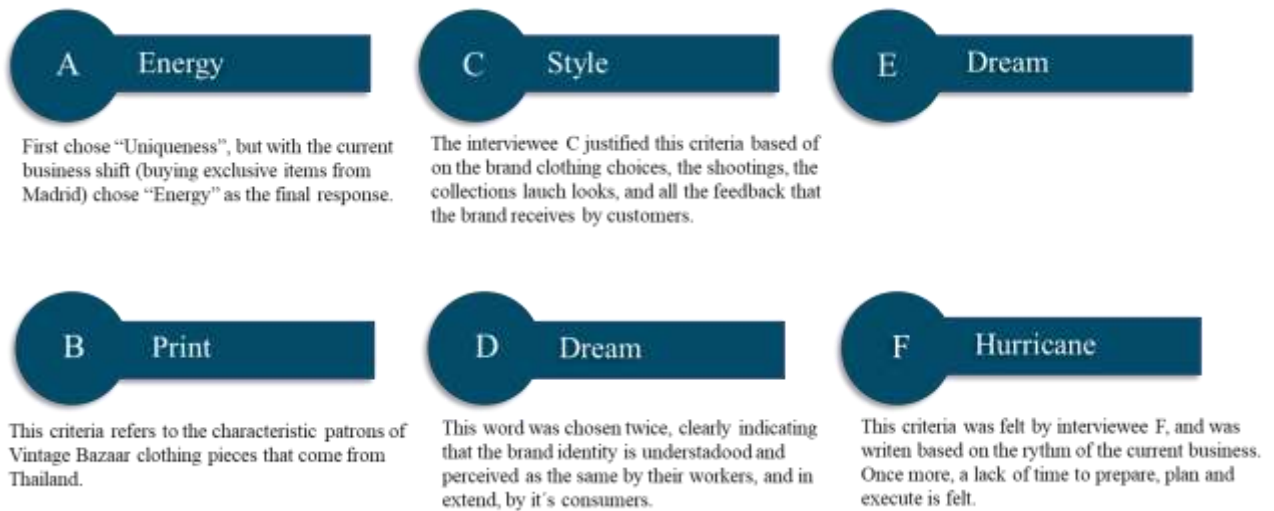


Figure 4 - Words chosen by each Participant.

Interestingly enough the word "Dream" was chosen twice by two different participants, which, in representative terms, validates the idea of how the internal workers view the company they are working in and, in it extend, how also the costumers experience the brand.

Then, 4 cards, each representing the criteria already chosen as an input for the Macbeth system, were shown to all participants. The point was now to for the criteria chosen by the participants into que criteria that was thoroughly analysed by me. As previously mentioned, the chosen criteria were:

- > Brand Concept
- > Speed of Delivery
- > Service Quality
- > Price

After explaining each concept and what it stands for, the group fitted their individual criteria "Brand Concept". As Interviewee D stated *"... the brand concept is always underlying. If you don't have a concept, you can't differentiate from the competitors nor the market"*.



Figure 5 - Individual Criteria fit onto Brand Concept

During this debate the criteria of “Brand Concept” was debated and strongly agreed to symbolize the exclusivity of the brand, not necessarily of the pieces, and the reason why so many customers still want to buy clothing pieces from the brand, and not from competitors. This brand concept includes the styling, the merchandising, the photo shoots and how the final product is presented to the customer, either online or in stores. Customers feel the need to be a part of something. And the Green Week serves as a perfect example: clients do not worry if they order two or three identical dresses, many just want to buy something so that they can have something with the Vintage Bazaar label.

› **Question 9:** How would you rank the remaining criteria by order of importance?

Service was ranked onto second place because it refers to the shopping experience. In this company, buying a clothing item is much more than just clicking on “Purchase” button on the website, it is about all the support, care, and attention to detail that is given to the customers. The VB company highly invests on training the people that are directly in contact with the final customers to make them feel a part of something, to feel heard, to feel comfortable and most of all to feel confident I what they buy. The brand views the customer purchase as an opportunity to make the customers come back for more. And during this focus group, this message was recurrent through most of the participants.

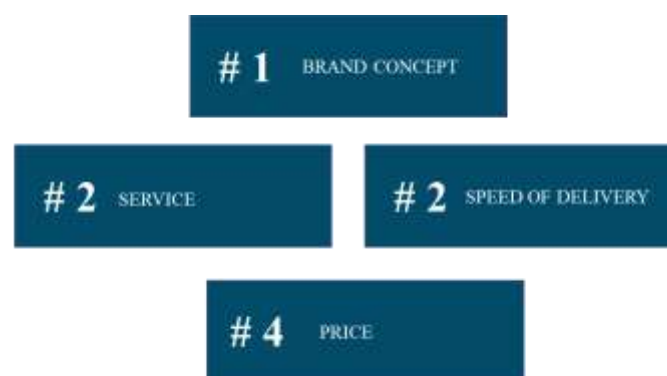


Figure 6 - Criteria Ranking by Ascending order of Importance

Also, the speed of delivery was equally ranked onto second place because the participants, given their experience with the brand, and level of proximity with the customers, understand that the clients highly value the premise of “receiving the right product in the right time”, as interviewee E stated. In fact, many Vintage Bazaar costumers often send their positive feedback about this matter through social media or through private messages in WhatsApp. But these times become more difficult to maintain for orders that are shipped into the islands, so interviewee C, mentioned that the option of pick-up points would be highly valuable for the company, since it represents and more convenient, flexible and most of all

affordable option for the Vintage Bazaar mainland customers, and even more to orders that go to the islands.

Finally, the price was ranked onto fourth place, because, and as interviewee F said “... *if the customer was happy by the service, and even if the order arrives one or two days late, the price will not matter at all*”. This clearly shows that the major concern of this brand is not the price, is not to be a fast fashion company that sells it's clothing at the very lowest price in the market, but instead, aims to be the brand that customers feel the most valued and identify themselves with the lifestyle that the brand represents.

To conclude, this focus group was crucial to understand how each individual participant, and as an extend, the department that is represented, felt about the company in various levels. Firstly, and through the questions 1 and 2, it was intended to understand how the Vintage Bazaar supply chain was viewed from its internal resources. If the critical activities matched between participants, and ultimately, if they matched with the individual analysis done based on my research. And, as it is showed ahead on Chapter 5 – Case Study, the critical activities identified were a little distinct. Nonetheless, the supplier's importance discussed through this focus group has come to meet my personal analysis. Without a good relationship with suppliers, the company cannot be able to deliver the right product to the costumers, and the entire supply chain is compromised.

Also, it was very interesting to hear about the importance of the promotion and of the design to this company. Almost every participant mentioned or agreed onto these criteria, being one of the most critical activities for the Vintage Bazaar business to run properly. Another critical activity mentioned, that was not on the previously written cards, was the communication. This was given a lot of importance, because it influences on how the product is directly perceived by the customer: their first impression. And this was a crucial input that came from the General Manager that has worked in this company since its first day and has accompanied the brand growth and evolution throughout the years.

Something that I was not expecting was the little importance given to the final customer, especially from the Store Manager and E-commerce Shop Manager. On the contrary, I have the opinion that the final customer is the centre of the supply chain and the company's business model. More than the suppliers, promotion or communication, the client must be in the centre and the company's top priority.

Another very interesting matter of these two questions, that was after identified as clear in question 3, was the importance given right away to the planning activity and in how was rapidly known that it was lacking on the company's day to day operations. By comparing Vintage Bazaar, a small-medium company, to Zara, a big and successful brand, made participants understand that that is how smaller brands evolve into bigger, better, and greater ones. The motivation, the will, the people, and the energy are there, and if others are being successful in the last mile of the supply chain (where most part of the

operational costs is invested), why can't we invest in planning (demand forecasting) to try to have greater operational and financial results, as this study's research question refers?

It is very important to add that this interview was extremely useful because, not only did it add value to the already made alternative scenario building, but also, validated and corroborated some of the options that were put.

Lastly, and to serve this focus group major purpose, the question 9 was critical to understand the weight and what was most or less valued in this business by the participants. This input will serve as a direct input for choosing the evaluation parameters and its respective ranking for the 4 criteria chosen for the Macbeth analysis in the next chapter.

From this meeting, the parameters chosen to evaluate each criterion are further presented in Chapter 5, in Figure 8.

4. CASE STUDY

The chosen company is a fashion retailer company called Vintage Bazaar. It is a Portuguese-based small and medium enterprise (SME) that has been on the market for 16 years.

Throughout these years, the company has undergone through substantial changes in the various business areas, including vision, goals, human resources, and supply chain, but has always maintained its business focus on offering the client the best experience in fashion.

Vintage Bazaar started as a re-selling company for already manufactured items bought overseas, mainly in Thailand. The current company CEO picked and bought the clothing items herself and flew them to Portugal, more specifically to Santo Amaro de Oeiras, where she found a small "shop". Her friends and later, the community around that location, shown an increased interest on buying the clothing items she brought, so she gave a step forward and started renting this small space also in Santo Amaro de Oeiras, where later the first Vintage Bazaar store has opened. In those days, she was the only person working, but rapidly became clear that help was needed. A small office was created on the cave in of the store to allocate the three workers. They focused mainly on selling clothing items, but soon started to invest in accessories and even some décor pieces.

Later, and to reach more customers and increase brand visibility, Vintage Bazaar started to sell their products in other brands stores all over the country. Local stores from all over the country received a commission from selling the Vintage Bazaar pieces and as a result, the brand started to gain visibility and customer fidelity. It was time to give another step forward and beginning to design its clothing items

and order its production to big factories, also located overseas. They would go overseas and order in large batches and with a three-month frequency time and sell them in their first store, in Santo Amaro de Oeiras and in the other selling points. For future explanation purposes, these items are called flash items.

As their business awareness increased, and the sales went up, it was time stop selling Vintage Bazaar items in other stores and the reselling business was shut down. In parallel, more stores opened, in Lisbon and, more recently in Porto, and their business model started to shift, as well as it's organizational human resources chart, as it can be seen in Appendix 32.

One of the greatest changes came during the Covid-19 Pandemic when the company was forced to change its business model to be able to continue its business activity. So, they invested largely in expanding their business worldwide with the VB website opening. Another relevant change occurred last year when the company started to focus more on buying already manufactured clothing items from suppliers in Madrid and re-selling them in their stores. These are called exclusive items.

So, their current business model consists of releasing the collections every three (flash items) but are interposed with releases of those exclusive clothing items that come from Madrid. Therefore, the company's business model has completely changed and is still currently changing, as new clothing items have entered the point of sale every single week.

For a better understanding of the company's business structure, the supply chain can be seen in Figure 7.

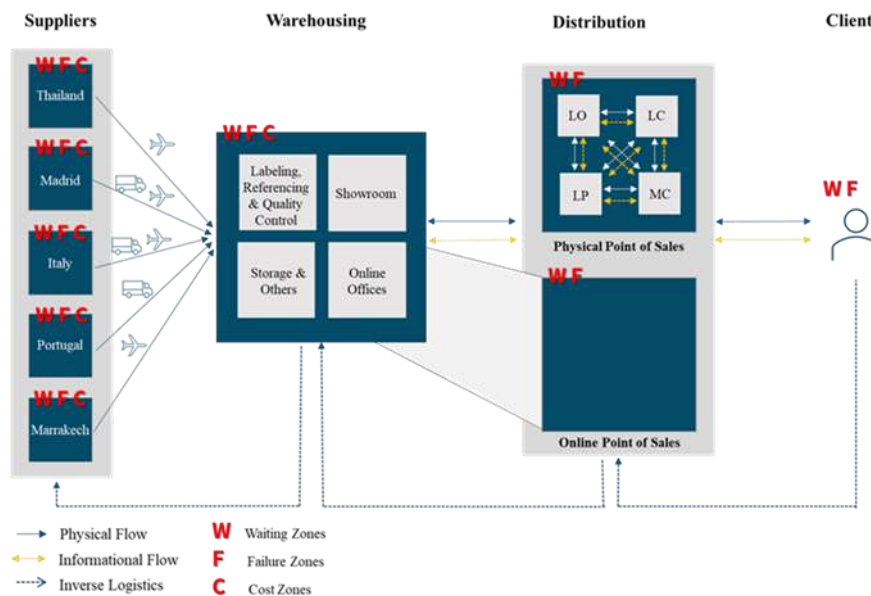


Figure 7 - Vintage Bazaar Supply Chain and Major Constraints

Besides all the positive aspects that come from the change in the company's supply chain, some constraints have also arisen. The main waiting, failure and cost zones were identified throughout the entire supply chain and, as a result, the major challenges faced by the company are the following:

- › Extended Waiting Times on the Supply Side, especially from suppliers overseas;
- › Overstocks and Understocks situations on the Points of Sale;
- › Excessive Storage Space Occupied;
- › Increase of Product Obsolescence with time;
- › Errors between the Physical Stock and the System Stock;
- › Customer's Parcel Lost by the Distributors;
- › Customer Quality Complaints;
- › Major Waiting Times for Customer Orders in Madeira and Azores Islands.

Some of these challenges have been reported by company workers during semi-oriented interviews and others have been noted by personal experience in the company. And after careful analysis, it became evident that the Last-Mile Performance, which relates to the final part of the supply chain in which the customer takes part (transportation, waiting times, quality, exclusivity, etc) is highly affected by a more upstream side of the supply chain – the Demand Forecasting.

In the aftermath of all these topics, the Research Question of “Can a Demand Forecast System improve a Company's Last Mile Financial and Operational Efficiency Performance?” has arisen, which I will discuss and respond to in the next chapter.

5. DATA ANALYSIS AND DISCUSSION

5.1. Problem Structuring

As previously mentioned, the MACBETH system consists of a Multi-Criteria Analysis System that aims to support the operational decision-making of a company, especially given the volatility of the business world. More specifically, the volatility in the fashion industry, in which constant change, fast rotativity of products, seasonality of collections, increase of globalization and information flux and risks of disruption, are characteristics that are strongly present.

The system enables the qualitative evaluation of multiple options, having as a base a 7 categorical attractiveness levels, for each of the criteria chosen. Also, the qualitative valuation these attractiveness differences by the Value Functions and set of Ponderations.

The first step to implement this methodology is to structure the problem. And what is proposed with this system is to understand the effects of a demand forecast system on the Company’s Last-Mile Financial and Operational Efficiency Performance, given a set of criteria, qualitative information, and alternative scenarios.

5.1.1. Define Criteria

The next step, and regarding the structuring of the MACBETH method, is to define the criteria, performance descriptors and the alternatives.

As for the criteria definition, some exclusion and inclusion criteria were considered. Initially the most important criteria were the listed, similarly, to Figure 8, but after a careful analysis of the company’s business model and supply chain, the most relevant criteria were chosen and can be identified as the highlighted in a different colour, as it was previously described in 3.2.2.



Figure 8 - Evaluation Criteria

After this criteria choice, the MACBETH model construction could finally begin. A new file called “Vintage Bazaar Case Study” was created and the most relevant criteria were laid out, as it follows:



Figure 9 - Criteria Tree Construction

5.1.2. Performance Descriptors

Now, the question is “how could we contribute decisively to well informed judgements and to justified and transparent evaluation?”. According to (Bana e Costa et al., 2003), a “descriptor” is an ordered set of plausible impact levels associated with a criterion. In practical terms, is used as a measuring unit (either categorical or numerical) that operationalises the impact of each action in the criterion, makes the objective description possible and adequately frames the evaluation model (by restricting the most attractive and least attractive levels).

For all evaluation criterion, the respective descriptors were defined in accordance with the Vintage Bazaar preferences, and are summarized in the Figure 10, presented below:



Figure 10 - Evaluation Criteria

For each qualitative criteria, Brand Concept and Service Quality, four performance levels were defined, and each level was formed by a combination of two variables. The four levels were created with the intent of covering all the possibilities between those variable combinations.

Regarding the quantitative criteria, Speed of Delivery and Price, five levels of performance were discriminated to provide a middle term of performance level, a midterm that is not possible with four levels.

Then, to continue building this model, it is recommended that the company provides an explicit definition of the performance level in each criterion alternatives:

- › The “Good” level was attributed the intrinsic value of “undoubtedly satisfying” level of performance.
- › The “Neutral” level was attributed the “neither satisfying nor unsatisfying” level of performance.

These performance levels were created to avoid the most common error in this methodology that is to determine the weightings without considering the reference levels. So, the “Good” level of performance was attributed the score of 100 points and the “Neutral” of 0 points. Now, these two levels will serve as reference levels within all the model structuring since they are proved to contribute significantly to the intelligibility of the criterion. Saying that an option is better than other in terms of service quality, for

instance, is not the same that explicitly defining what is meant by a good service quality or a neutral service quality.

To attribute this reference levels to criteria, qualitative and quantitative data was taken into consideration to locate where the company is at now, and to where it can evolve.

More specifically, and for the “**Brand Concept**” criteria, the chosen performance descriptors were both qualitative. The combination between the variables “Uniqueness” and “Value” was considered the most suitable to measure these criteria:

- › Uniqueness since the brand aims to offer exclusivity to its customers, not only in clothing but also in the shopping experience as a whole.
- › Value because, no matter what path the company choses, that being investing in a special collection line, do the Green Week event twice a year or invest in pickup points, the most central aspect is how the costumer perceives and what idea it forms around the brand. So, ultimately, it is key to measure if the customers values or not the aspects that integrate the “Brand Concept” criteria: exclusivity, visibility, styling, product presentation, influencers and so on.

As it is shown in Figure 11, the combination of “Concept of the Brand is Unique and Highly Valued by the Costumer” was considered as the “Good” reference, because it represents an attractive position for the company. And, as for the “Neutral” reference, the combination of “Concept of the Brand is Not Unique, but Highly Valued by the Costumer” was chosen because, even if the brand can have similarities to other brands (clothing pieces, product merchandise, customization of services, etc), the minimal standard should always have the costumer to appreciate and value the experience. More than being innovative and always unique, it was considered that, if the costumer is satisfied, the image it forms about the brand is positive.

Propriedades de Brand Concept

Nome: Brand Concept

Nome abreviado: BC

Comentários:

Base de comparação:

- ☐ as opções
- ☐ as opções + 2 referências
- ☒ níveis qualitativos de performance
- ☐ níveis quantitativos de performance

☒ critério

Níveis de performance:

-	+	Nível qualitativo	Abreviado
1		Concept of the Brand is Unique and Highly Valued by the Costumer	U & HV
2		Concept of Brand is Unique, but Moderatly Valued by the Costumer	U & MV
3		Concept of the Brand is Not Unique, but Highly Valued by the Costumer	NU & HV
4		Concept of the Brand is Not Unique and Moderatly Valued by the Costumer	NU & MV

Figure 11 - Exclusivity Performance Levels

Regarding the “**Speed of Delivery**” criteria, the performance descriptor was quantitative to facilitate the numerical measuring:

- › Percentage of deliveries within 48 hours gap. This is because the company, when it comes to continental deliveries, complies most deliveries within 24h-48h gap after the purchase was validated. Customer feedback points that customers are rather satisfied. However, when concerning the shipping outside Portugal continental, including the Azores and Madeira islands and even overseas, the orders take much longer. So, an up value of 90% and a low of 65% were defined, in conformity to what the company should offer with the different scenarios.

In what regards the levels classification, the company in the “As-Is” scenario is at approximately 85% of deliveries within the specified time gap, for continental deliveries in Portugal. But, for deliveries in the Azores or Madeira Islands, and international orders, the gap is considerably reduced to about 65%. Nonetheless, this value represents a neither satisfying nor unsatisfying situation according to the company CEO, meaning that it was attributed as the “Neutral” level of performance. On the other side, the “Good” performance level was assigned by the company to 85% in all deliveries.

Propriedades de Speed

Nome: Speed Nome abreviado: S

Comentários: Percentage of Delivery within 48h

Base de comparação:

- ☐ as opções
- ☐ as opções + 2 referências
- ☐ níveis qualitativos de performance
- ☒ níveis quantitativos de performance

☒ critério

Níveis de performance:

Nº	Nível quantitativo
1	90
2	85
3	75
4	55
5	60

Indicador: Entregas em 48h

Abreviado: Entr Unidade: %

Figure 12 - Speed Performance Levels

For the third criteria – **Quality of the Service** – the variables to measure were qualitative, and similarly to the previous criteria, the variables combination were value and level of customization. As described above:

- › Value, similarly, to what was described for the “Brand Concept” criteria, creating customer value increases customer satisfaction and the customer experience. So, it is key to increase customer loyalty and fidelization and brand visibility.
- › Level of Customization was chosen to measure this “Quality” criteria, because providing a personalized service is the customer tailored experiences that meet the consumer's individual needs and preferences. Also, this personalization often makes the customers feel more valued, which inspires greater brand loyalty.

As it is shown in Figure 13, the “Good” performance level is “Customized and Highly Valued by the Customer” because it represents the absolute goal for the company and, the “Neutral”, on the contrary, to be the “Standard, but Highly Valued by the Customer” combination. If the store manager just complies with the minimum (greet customers as they enter, answer to questions made or thanking them for the visit), it can make a difference to the image that the customers build around its service quality and, therefore, the brand image formed by the customer.

Propriedades de Service Quality

Nome: Service Quality Nome abreviado: Sq

Comentários:

Base de comparação:

☐ as opções

☐ as opções + 2 referências

☒ níveis qualitativos de performance

☐ níveis quantitativos de performance

critério

Níveis de performance:

-	+	Nível qualitativo	Abreviado
1		Customized and Highly Valued by the Customer	C & HV
2		Customized, but Moderately Valued by the Customer	C & MV
3		Standard, but Highly Valued by the Customer	S & HV
4		Standard and Moderately Valued by the Customer	S & MV

Figure 13 - Service Performance Levels

Finally, and as for the last criteria – **Cost** – was described as a quantitative criterion and was proposed to be measured by the suppliers cost of the clothing per collection. In other words, the liquid value that the company needs to pay their suppliers to order an entire collection, in average. Keeping that in mind, the company, then proceeds, to calculate the final price that is presented to the customer. So, though the monetary cost of each collection, the company sets the margin and then, finally, the price for the final customers.

For the performance levels, a set of calculations were made to discover in what level the company is on all scenarios. After gathering the average price cost per item category, as shown in Appendix 33 and 34, and by multiplying those numbers by the average quantities ordered by each item category, already mentioned on Chapter 3.2.1, an average cost by collection was calculated to each scenario possibility:

› Company's "As-Is Scenario"

For the Flash Items, the following formula was applied:

$$6 \text{ Items Variety} \times 40 \text{ units stock} \times 7\text{€ (average cost by item)} = 1\,680\text{€}$$

Concerning the Exclusive items, and based of the latest collection, the formula was the following.

$$30 \text{ Items Variety} \times 20 \text{ units stock} \times 17,3\text{€ (average cost for all items)} = 10\,380\text{€}$$

This data enables to calculate an average price cost for each collection of around 12 000€.

› 2nd Scenario

Since this scenario will explicitly focus more on the Flash Items, and on hosting the Green Event twice a year, more variety of flash items was considered, rather than to the exclusive ones, and in bigger quantities to have units to spare for the event.

So, for the Flash Items, the following formula was applied:

$$12 \text{ Items Variety} \times 45 \text{ units stock} \times 7\text{€ (average cost by item)} = 3\,780\text{€}$$

As for the Exclusive, and with the option of “Turning suppliers into partners”, it is expected a reduction of the price cost per item. And for this, a percentage of 3% reduction was assumed.

$$15 \text{ Items Variety} \times 25 \text{ units stock} \times 16,8\text{€ (average cost for all items)} = 6\,300\text{€}$$

So, the approximate cost price for each collection, considering the “2nd Scenario” would be of about 10 000€.

› Lastly, and concerning the 3rd Scenario, the calculations were the following:

$$6 \text{ Items Variety} \times 40 \text{ units stock} \times 7\text{€ (average cost by item)} = 1\,680\text{€}$$

And as for the exclusive items, which in this scenario would compose the Special Collection Line (increasing product variety while decreasing quantities), the calculations were the following:

$$45 \text{ Items Variety} \times 15 \text{ units stock} \times 17,3\text{€ (average cost for all items)} \approx 11\,677\text{€}$$

This gives a total of about 13 3000€ for the cost price for each collection on this scenario.

All these information, were put in the Macbeth system, as it follows on Figure 14.

-	+	Nível quantitativo
1		8000
2		10000
3		12000
4		14000
5		16000

The “Good” level of performance was attributed to the 10 000€ option, meaning it is an undoubtably attractive scenario for the company. It is

Figure 14 - Suppliers Cost Performance Levels

always competitive for the company to spend less whilst obtaining the same outcome (profits margins, customer satisfaction, service quality, etc). On the other side the “Neutral” level was attributed to the current company suppliers’ cost, 12 000€. It does not represent neither a good nor bad option, as it is feasible at the moment.

5.1.3. Define Options/Alternatives

Now, given these information’s about the criteria and their respective performance indicators, adding to the already described scenarios, a table with all options and respective performances is presented in below (Table 5).



Opções	BC	Sv	S	C
As-Is	U_MV	C_MV	65	12000
2nd	U_MV	C_MV	75	8400
3rd	U_HV	C_HV	90	13300

Table 5 - Table of Performance for each Scenario

Regarding the first criteria, the **Concept of the Brand** is consired unique in all scenarios, since “... *it is extremely important that the costumers are wearing something exclusive and designed by us, that adds value and status, and that is a reference*”, in the words of the company CEO. Then, regarding the value perceived by the costumer, it can be moderatly or highly felt, never null, because it is not how the brand is nor corrsponds to the costumers feedback. So, in the “As-Is” and 2nd Scenrios this value is felt moderatly, because, indeed it exists but in comparison with the 3rd scenrios, where a special line is proposed, the brand would add even greater value to its costumers, by increasing the brand escarsity effect, and make the costumers feel they were apart of something even bigger and better.

Concerning to **Speed of Delivery**, and due to the shipping to the portuguese islands and internationally, the 24-48h gap is not always possible. That is why the percentage of the As-Is” Scenario is about 65% withiin thisgap. In the 2nd Scenario, it is expected to invcrease to 75% due to the central warehouse option, allowing for order aggreggations, and the partnership with already existing distributor for pickup points. These are advantageous for the company (reduce delivery times and operational costs), and also for the final costumer, since they do not have xtra shipping costs. Then, in the 3rd Scenario this number is expected to increase to about 90% due to the partnership with an external supplier for worldwide orders.

As for the **Service Quality** criteria, in all scenarios it is costumized and this is because, and in th words of the Vintage Bazaar CEO, “... *customisation is my ethos and I want to transmit that to my business. It's inconceivable not answering phones, not replying to messages, not dealing with the costumers issues. I am very picky when it comes to buying and the way I look at services (customer support and*

problem solving), so one thing I want them to know is that we are here. Absolutely key, whether it's in a purchase in a store, online shopping, in markets, or through communication with other companies or influencers. If the costumer choses to go to Vintage Bazaar, they know the company will listen, answer and respond". The, and regarding to the level of value perceived by the costumer, moderate or high, in the first two scenarios is moderate, because in comparison to the third, where there is an iinvestment in Green Sustainability Policies, it is expected that the costumer values the brand even greater. Whether by simply investing in changing the paper bags to organic and recycled cotton bags, produced by sustainable suppliers, or by starting incentive costumers to recycle their old items in return of a monetary compensation, or even to start producing some items locally. Nowadays costumers are valuing these causes increasingly, as they are given a lot of alternatives on this fashion apparel industry.

Finally, and as for the **Supplier's Cost** to produce a collection, the values were estimated by calculations and then, specifically for the "As-Is" Scenario, were validated by the company CEO.

The information gathered until this point can be seen in Figure 15, that shows the rankings for each scenario, in decreasing order of attractiveness, according to each creterion specification. More specifically:

- › The "3rd" Scenario is the most atractive in the "Brand Concept" and " Service Quality" criteria, comparing to the other scenarios. On the "Delivery Speed" it actually surpasses the "Good" performance level, indicating it is very attractive alternative for the company. Nonethess, the 3rd scenario is the worst, when it comes to the "Cost" criteria, being bellow the "Neutral" level of performance.
- › The "As-Is" Scenario is also atractive in what concerns the "BC" and "Sv" criteria, despeite being less atractive than the 3rd scenario. In terms for "Delivery Speed" this scenario is the least atractive of all trheree, but still fits the company "Good" performance level. For the "Cost" criteria, this scenrio is in accordance to the company "Good" reference level, menaing it is quite atractive, but still less than comparing to the 2nd Scenario.
- › The 2nd Scenario is the least atractive in terms of "Brand Concept" criteria, but still inside the company's "Good" reference levels, menaing it is still an attractive option. The same happens for the "Service Quality" criteria. As for the "Delivery Speed" this scanrio surpasses the "Good" reference level given by the company, menaing that is very attractive, even if cannot overcome the 3rd scenario.

BC	Sv	S	C
U_HV	C_HV	3rd	2nd
3rd	3rd	2nd	10000
As-Is	As-Is	85	12000
2nd	2nd	As-Is	As-Is
NU_HV	S_HV	65	3rd

Figure 15 – Scenario Rankings by decreasing order of local attractiveness

To also validate this informations, a robustness analysis using the concept of “dominance” was conducted in order to compare impacts of different actions. In other words, this analysis was conducted to reduce the risk of only taking into account the individual comparisons of the impacts-profile of each action with reference profiles. The idea is to make sure that all scenarios, each with their different levels of attractiveness in each criteria, are compared with each other, and not only compared taken into account the reference levels.

This analysis, in Table 16, shows that is robust to state that the “As-Is” and 2nd Scenarios are globally attractive alternatives. However, the question mark in the 3rd scenario does not mean that this alternative is globally unattractive – only shows that, with the information gathered until this stage, the alternatives “3rd scenario is attractive” and “3rd scenario is not attractive” are not robust.

	As-Is	2nd	3rd	[tudo sup.]	[tudo inf.]
As-Is	=		?		▲
2nd	▲	=	?	?	▲
3rd	?	?	=	?	?
[tudo sup.]	▲	?	?	=	▲
[tudo inf.]			?		=

informação local				informação global		
	ordinal	MACBETH	restrições	cardinal	ordinal	MACBETH
BC	☒	☐		☐ ±0%	☒	☐
Sv	☒	☐	☐	☐ ±0%	☒	☐
S	☒	☐		☐ ±0%	☒	☐
C	☒	☐		☐ ±0%	☒	☐

Figure 16 - Dominance Analysis

Nonetheless, the results shown only provide qualitative knowledge about the local attractiveness of the actions, and are not enough to support whether one scenario is “better” or “much better” than another, nor how attractive or unattractive they are. This can only be obtained through the quantitative value analysis that will be further explained in the next topic.

5.2. Additive Valuation Model

5.2.1. Criteria Value Functions

It is important to note that the matrix shown below was also validated with the company CEO, as well as the matrix for the other criteria.

Starting with the **Brand Concept** Criteria, the first step is to compare the most attractive performance level with the least attractive, in the last column, as it is shown in Figure below:

	U_HV	U_MV	NU_HV	NU_MV	Escala actual	
U_HV	nula	forte	forte	extrema	100.00	extrema
U_MV		nula	forte	forte	0.01	mt. forte
NU_HV			nula	forte	0.00	forte
NU_MV				nula	-100.00	moderada

Julgamentos consistentes

Figure 17 – “Brand Concept” Criteria Value Function

In this column, the extreme level of difference was only given when comparing the opposite hypothesis (Not Unique vs Unique and Moderately Valued vs Highly Valued). And for the other hypotheses, the weight different was “strong” since, the CEO confessed that the level of importance of Uniqueness vs value was strong and 50/50 for the company. Then, the next step was to fill the first row of the matrix, that followed the same reasoning, until the diagonal was also filled, completing the superior part of the matrix. The system automatically checks the consistency of judgements and, if they are not aligned, suggestions are given.

Then, concerning the validation with the company CEO, the corresponding Value Function was adjusted, as shown in Figure 18.

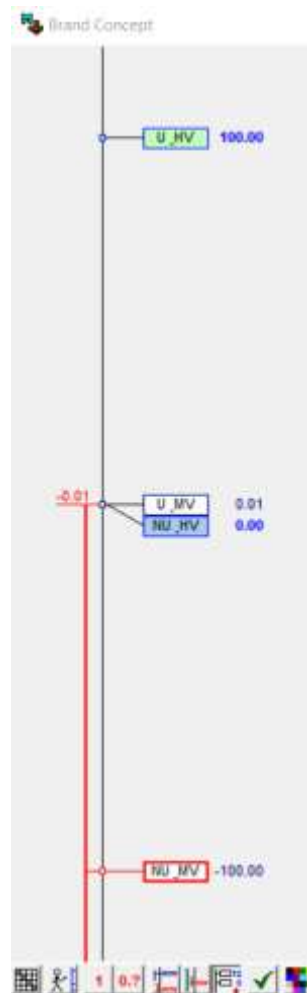


Figure 18 - Brand Concept Value Function Validation

This is because the company CEO stated that the weighting between Uniqueness and Value to be equal. Also, “... we must have at least one of the two. With both I succeed, with one I survive, without one I die”. This was why the weighting of 100 points was attributed to the already mentioned extreme difference (Unique and Highly Valued), meaning the success, only 0 points to the alternatives only having one alternative (Unique and Moderately Valued or Not Unique and Highly Valued), as it translated the “survival scenario” and -100 points to the alternative where neither of the alternatives is positive (Not Unique and Moderately Valued), representing the “Die Scenario”. Also, it is important to know that the CEO admitted that this weight can change according to intuition and collections. If she feels that the customer is valuing and that is satisfied with the concept and the idea around the brand, that leaves more space in the next collection to invest in the uniqueness criteria. For example, by choosing a special print to a meaningful collection, similarly to what happened with the Aljezur Collection which was specially made for the launching of the new physical store. “It is not about changing the entire strategy, but rather go on perfecting the little things: shootings, new media content creator, different communication, and then wait for the impact”.

Then, this process was repeated for the remaining three criteria. For the **Service Quality** Criteria, the developed matrix is showed in Figure 19.

	C_HV	C_MV	S_HV	S_MV	
C_HV	nula	moderada	mt. forte	extrema	extrema
C_MV		nula	fort-mfort	fort-mfort	mt. forte
S_HV			nula	moderada	forte
S_MV				nula	moderada
					fraca
					mt. fraca
					nula

Julgamentos consistentes

Figure 19 - "Service Quality" Criteria Value Function

This value function was build based on the company's preference of the customization criteria over the costumer value. The company chosos to prioritizes to offer a service that fits exactly the customers' needs, so it focuses on details such as how the store managers are dressed, how they can interact, adapt, and react to the costumers. And this is highly value because, in the company's CEO own words:

Generally, the level of service that brands provides is bad, in terms of efficiency, speed and quality. And that is why I value this. When I am choosing a brand or a service, this is decisive... Just by answering a simple question on the day the customer raises its finger, it's crucial that we are there, and then (...) the day she must choose one brand or ours, she will choose ours".

And then, as the customization takes place, the company will eventually receive the costumer's value perception. And, to contribute, the brand has a system of offering small gifts in stores, giveaways, discounts, and others, to give every costumer, no matter the amount of their purchases, the opportunity to feel special and valued. Ans this is why, for instance, the difference between the alternatives "Customized and Moderately Value" and "Standard Moderately Valued" is significantly higher (Strong-Very Strong) than the difference between the alternatives "Customized and Highly Valued and Customized and Moderately Valued" (Moderate).

As for the company validation, the 100 points were attributed to the best scenario possible, "Costumized and Highly Valued". Right after, the alternative "Costumized and Moderately Valued" was ranked with 90 points. This is because, the difference between these two options just relies on the Value, which was ranked just "Moderate" by the company. It is believed, and what arrives from the customer feedback, is that by investing in customization, the value will eventually be felt by the costumers. Then, the score of 0 points was given to the "Standard and High Value" alternative since it is not a desirable scenario for the company. It is not the essence of the brad nor the vision that it aims to pass. The same for the last alternative, which was given the weight of -10 points, to remaining coherent with the all scoring. All of this can be seen in Figure 20.

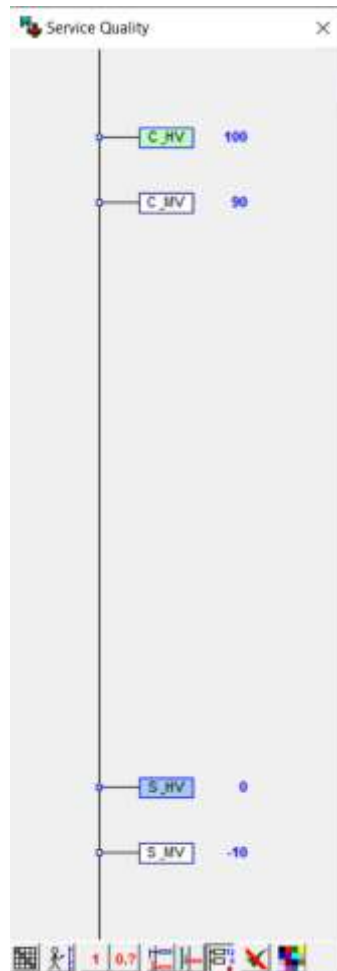


Figure 20 - Service Quality Value
Function Validation

As for the **Speed of Delivery** Criteria, the company states that, more than speed of delivery for the orders, the speed of the service itself, “...is one of the most important criteria in services”. But not only referring to the speed of delivery but also on the response time to customers. More than delivering fast, the company prioritizes consistency in communication and time of responses, rather than delivering in 24h, for instance. It is important that the customer receives its order the fastest possible, but if, for any reason, that is not possible, the company does not give a lot of importance. Because, if the customer is satisfied with the pre, during and post buying service, the delivery is secondary. That is why the following matrix was filled with lower importance levels, when comparing to the previous two concepts.

Nonetheless, this criterion was identified as key to empower the company service. Nowadays customers prioritize this option a lot, and most value receiving their orders in the same day of purchase or just the day after. And that is why the option of 90%, when comparing to the 60%, was given the importance of “Very Strong”, as shown in Figure 21. Because even though the company does not prioritize this, it

identifies the potential added value by investing in more efficient deliveries (pickup points for the “2nd Scenario or Outsourcing a distributor for international deliveries on the 3rd Scenario).

	90	85	75	65	60	
90	nula	forte	forte	mt. forte	mt. forte	extrema
85		nula	mod-forte	forte	fort-mforte	mt. forte
75			nula	mod-forte	forte	forte
65				nula	fraca	moderada
60					nula	fraca
						mt. fraca
						nula

Julgamentos consistentes

Figure 21 -"Speed of Delivery" Criteria Function

The following validation was decided with the company CEO in the following table, as well. Here, 100 points were attributed to the “Good” level of performance, delivering 85% of the orders in 24-48h gap, regardless the destiny of the order. For the most attractive option, 90%, a scoring of 133 was given. This is because, the company does not prioritize this option, nor feel that it would make an exponential difference for the customer fidelization. Of course, it would add value to the costumer shopping experience, but as of this moment, the company is not focusing on such high values, as it prefers to focus its resources (financial and humanistic) in strengthen the first part of the service rather than the delivery.

As for the 75% delivery on time, the scoring validated by the company was of about 50 points. They think that, on that level, the trade-off could be profitable in terms of adding value to the final costumer. As for the “As-Is” Scenario, 65%, the scoring was of 0 points since it represents a neutral option. Yes, most of the mainland costumers are rather satisfied with the speed of deliveries, but the islands and internationally are not so keen. Finally, the option of only deliver about 60% of the orders in the already mentioned time gap, was rated negative points since it is not a desirable scenario for the company. The company is rather satisfied with their time gap of deliveries in Portugal, so anything that goes bellow that is not acceptable.

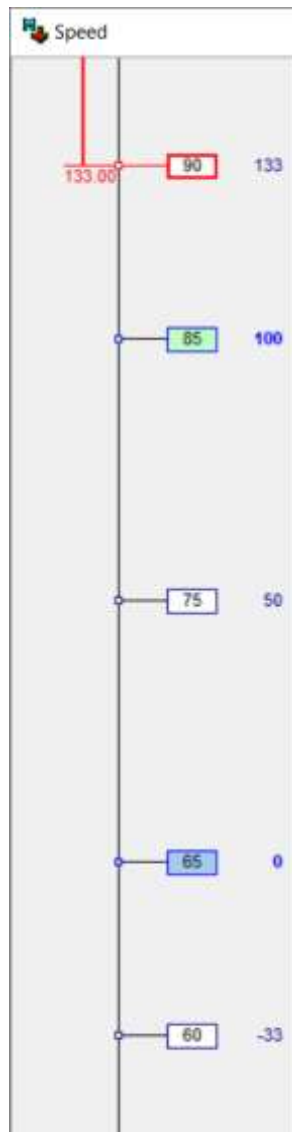


Figure 22 - Speed of Delivery
Value Function Validation

Finally, and for the **Suppliers Cost**, it was considered the least important of all four criteria. Nonetheless it is a critical factor to the company since it directly affects the company's profit margins and the final price to the customer. For the analysis the company CEO stated that "*the value for a collection is never defined*". Because the collection can offer greater variety in pieces but in less quantities, but also can have less variety, but in higher quantities per reference. Usually, the value is around 12 000€ per collection, but it can really vary. The matrix bellow shoes the importance given by the company on this criterion.



Figure 23 - "Supplier's Cost" Criteria Function

As for the validation, the results were the following:

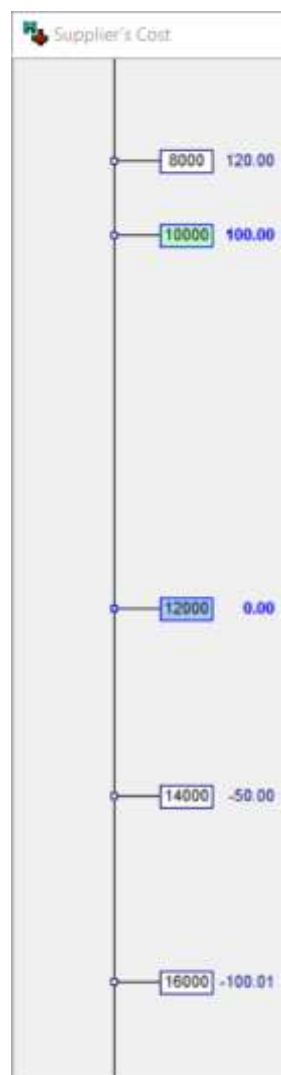
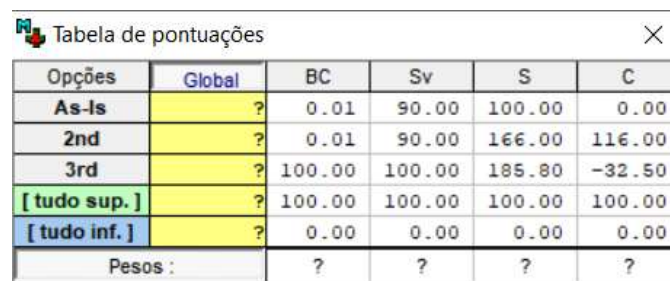


Figure 24 - Cost Value Function Validation

Contrarily to the previous criteria, the maximum performance level was given to the lower cost from the suppliers ($c=8000\text{€}$). It is always ideal that the company can get the same outcome for a more competitive price, and that is why the option where the cost of producing a collection, in terms of suppliers, is around 8000€ , the company will outcome the “Good” performance level ($c=10000\text{€}$) fixed with 100 points. The company’s “As-Is” Scenario which rounds the $12\,000\text{€}$ per collection is represented by 0 points, because it is a reference of the cost for the company, a neutral scenario where the company is comfortable to get it’s margins and sales profits still. Then, every cost value that goes below that reference is pointed as negative to the company, in the scoring, because it represents, in the current scenario, an extra cost and can push the company into practising higher prices for the final costumers, which is also not intended. This can be seen in Figure 24.

The following representation was very useful to visually seen which scenario is more, or less attractive, although it still is not able to precisely identify if any scenario is globally more or less attractive than the other, and by how much.



Opções	Global	BC	Sv	S	C
As-Is	?	0.01	90.00	100.00	0.00
2nd	?	0.01	90.00	166.00	116.00
3rd	?	100.00	100.00	185.80	-32.50
[tudo sup.]	?	100.00	100.00	100.00	100.00
[tudo inf.]	?	0.00	0.00	0.00	0.00
Pesos :	?	?	?	?	?

Table 6 - Overall Value Table for Scenarios

5.2.2. Criteria Sorting

After defining all the variables on this system implementation, the second aims to define reference levels to weight the criteria consistently. This is because, the most common error in this step is to determine the weightings without considering the reference levels. However, methods such as the Swing Weighting exist to consider this reference levels.

To apply this method, a set of questions was asked when building the model on Macbeth System.

- › If you could move from Neutral to Good on only one criterion, which criterion would you select for this change?
- › Excluding the criterion selected above, which criterion would you select next to move from Neutral to Good level? This question was repeated three times, in order to cover all criteria sorting.

And the answers, were as if follows:

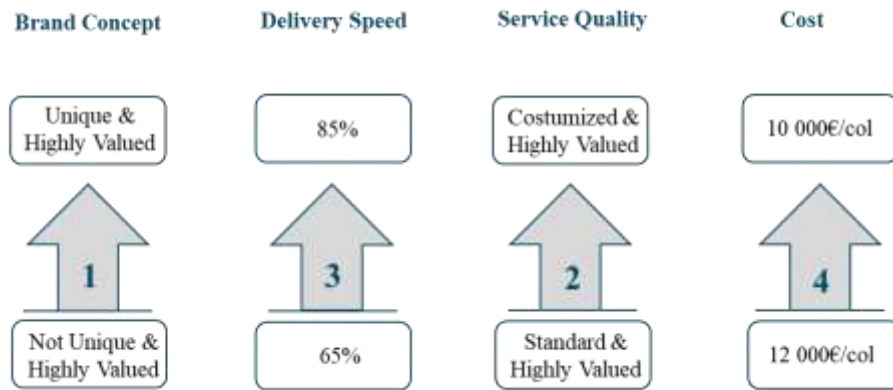


Figure 25 – Criteria Ordering with Swing Weighting

“Brand Concept” was rated number one in terms of importance, when ordering all the criteria, because, with all the individual analysis of the company, and adding what was discussed in the focus group, it became clear that, for both for the company and client, this criterion is the most valued and privileged. In fact, it is what differs the Vintage Bazaar company to its competitors.

The “Service Quality” was rated in second place by the company CEO because the shopping experience in this company goes beyond the products: it is about people, emotions, and sensations. To have a great customer service, is to value the customer’s time, while always adopting an interactive attitude, providing knowledge and useful inputs, and encourage the customer to be part of the whole fashion experience, rather than just meet its expectations. And if the customer leaves the store satisfied, even not having bought anything, it is sure that he will come back: customer loyalty. It was interesting to see that, on the focus group, the team identified this criteria and the “Delivery Speed” tied from second place, but the CEO rated immediately as the 2nd most important criteria.

Ranked in third place, there is “Delivery Speed”. This is because, and from experience, if the customer values the brand, and has a consistent and strong image about the brand already, receiving his order in 48h or 72h is not a problem. The customer will not damage the brand image it has built, just because the order took a little too long to be delivered. And this comes from personal experience with the brand, especially in the Online Department, where the orders are shipped to the customers’ houses.

Lastly, there is the “Cost” criteria. From all four criteria, it was ranked as the least important because most Vintage Bazaar customers, and generally speaking, are prompt to pay that little extra price – the premium price – to feel that they are a part of that concept, and to experience that premium service. So, cost, when considering the shopping experience, it is not a priority amongst these types of customers.

The next step is to fill out the weighting judgements matrix, and now with the criteria already ordered by level of importance, as just mentioned.

5.2.3. Quantification

For this next step, a set of questions were asked to the company.

1. Given a hypothetical scenario were the company had all four criteria ranked as neutral, how attractive is an improvement from “Neutral” to “Good” on the “Brand Concept” criterion?

In practical terms the question and the company answer can be visually seen in Figure below:

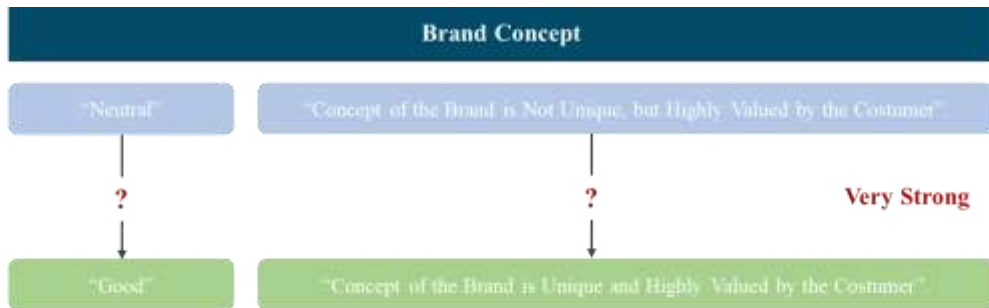


Figure 26 - Difference of Attractiveness from "Neutral" to "Good" in "BC"

2. Given a hypothetical scenario were the company had all four criteria ranked as neutral, how attractive is an improvement from “Neutral” to “Good” on the “Service Quality” criterion?



Figure 27 - Difference of Attractiveness from "Neutral" to "Good" in "Sv"

3. Given a hypothetical scenario were the company had all four criteria ranked as neutral, how attractive is an improvement from “Neutral” to “Good” on the “Speed of Delivery” criterion?

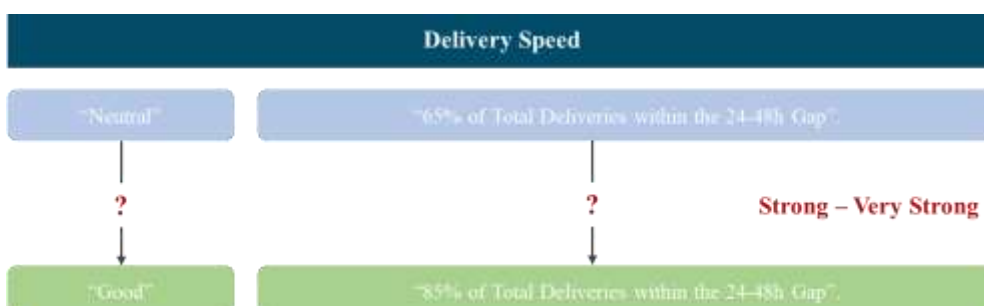


Figure 28 - Difference of Attractiveness from "Neutral" to "Good" on "S"

4. Given a hypothetical scenario were the company had all four criteria ranked as neutral, how attractive is an improvement from “Neutral” to “Good” on the “Suppliers Cost” criterion?



Figure 29 - Difference of Attractiveness from "neutral" to "Good" on "C"

This hypothetical scenario was then transported into the Weighting Judgement Matrix below. This Table also includes the qualitative ranking of each criterion, when comparing to each other. For instance, to fill the vertical column of the Cost criteria, the question asked was:

- › How attractive are the “Brand Concept when comparing to the “Cost”, “Speed of Delivery” and “Service Quality”, respectively?

Then, these questions were repeated for all rows, until the upper part of the Ponderation Macbeth matrix was filled out, as shown in Table 7.

The screenshot shows a software window titled 'Ponderação (Weighing a Demand Forecasting System on VB)'. It contains a table for comparing five criteria: [BC], [Sv], [S], [C], and [tudo inf.]. The table is a lower triangular matrix where each cell contains a qualitative judgment (e.g., 'nula', 'mod-foit', 'fraca'). To the right of the matrix is a column for 'Escala actual' with numerical values (45.83, 25.17, 16.67, 9.33, 0.00) and a vertical color-coded scale from 'extrema' (red) to 'nula' (blue). Below the table, the text 'Julgamentos consistentes' is displayed in green.

	[BC]	[Sv]	[S]	[C]	[tudo inf.]	Escala actual	
[BC]	nula	fort-mfort	mod-foit	mfort-extr	mt. forte	45.83	extrema
[Sv]		nula	mod-foit	forte	mod-foit	25.17	mt. forte
[S]			nula	fraca	fort-mfort	16.67	forte
[C]				nula	frac-mod	9.33	moderada
[tudo inf.]					nula	0.00	fraca
							mt. fraca
							nula

Table 7 - Weighting Judgements Matrix

Then, a weighting validation was performed with the company, using the “Construct a Scale using Macbeth” function, and the results were the following:

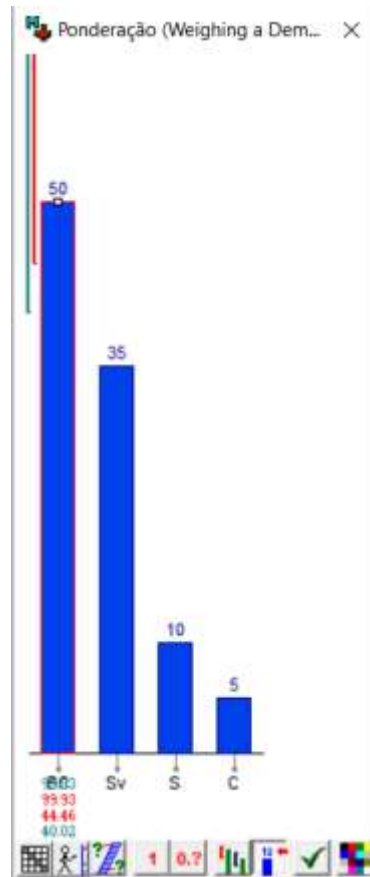


Figure 30 - Weighting Validation

5.2.4. Global Evaluation

With all information gathered, the Overall Value Table was now finally completed, as shown in Table 8.

Tabela de pontuações					
Opções	Global	BC	Sv	S	C
3rd	101.96	100.00	100.00	185.80	-32.50
[tudo sup.]	100.00	100.00	100.00	100.00	100.00
2nd	53.91	0.01	90.00	166.00	116.00
As-Is	41.51	0.01	90.00	100.00	0.00
[tudo inf.]	0.00	0.00	0.00	0.00	0.00
Pesos :		0.5000	0.3500	0.1000	0.0500

Table 8 - Completed Overall Value Table

This table shows in the overall column, the overall attractiveness of the scenarios and the profiles “Neutral” and “Good”, ranked by order of decreasing attractiveness.

With the information above, some possible conclusions about the criteria are possible:

- › The “Brand Concept” is the criteria which weights the most in the decision of each scenario. It is the most valuable asset for the company when deciding which scenario is attractive, accounting with a weight of 50%.
- › The “Service Quality” criterion comes right after, weighting 35% of the overall evaluation of each scenario is most attractive to the company.
- › The “Delivery Speed”, and after the company’s validation, accounts for 10% of this evaluation.
- › The criterion that weights the least on evaluating this scenarios hypothesis is the “Supplier’s Cost”, representing only 5% of the overall weight.

To take conclusions about which scenarios are more, or less, attractive given each of the criteria weight provided above, the “Graphs XY” tool provided by the Macbeth system were considered relevant for a conjoint analysis of criteria. Figures 31-34 show the performance of each scenario regarding each of the four criteria.

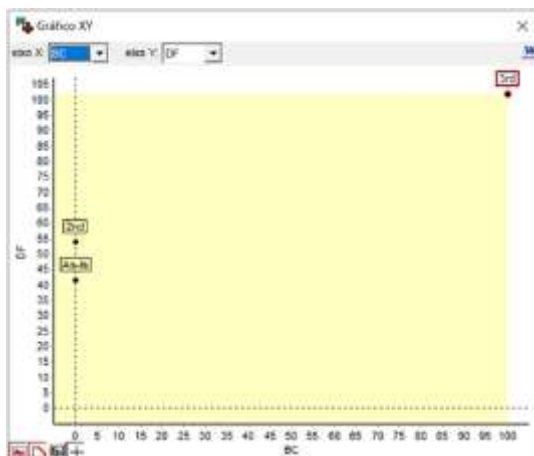


Figure 31 - Scenarios Performance through "BC"

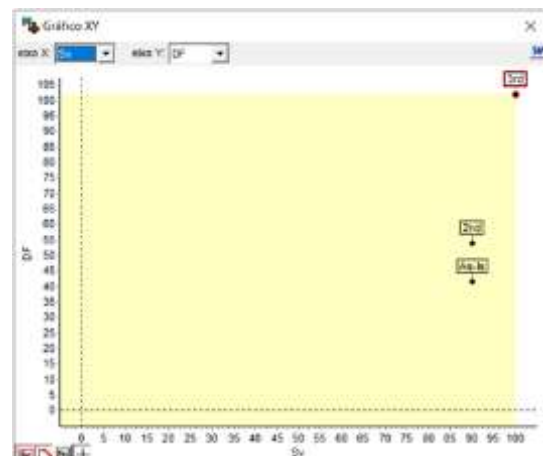


Figure 32 - Scenarios Performance through "Sv"

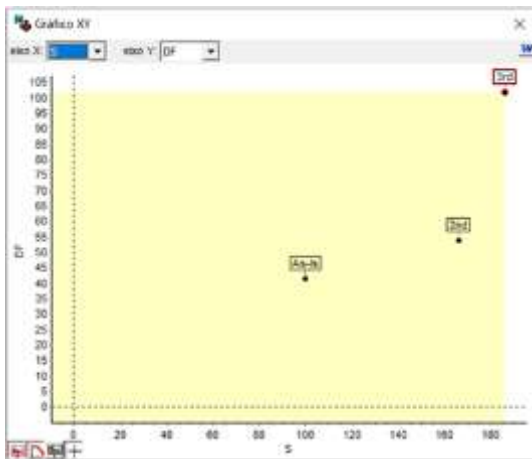


Figure 34 - Scenarios Performance through "S"

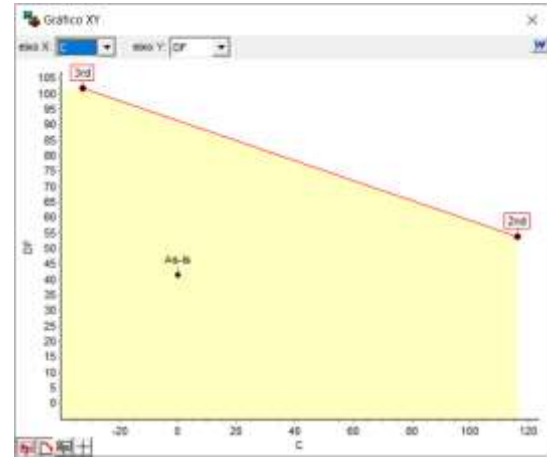


Figure 33 - Scenarios Performance through "C"

In all graphs, the orange area marks the “inefficient zone”. Any scenario that is comprised within that zone is considered inefficient by the system and any that stands outside is considered efficient for the company, considering the data inputs from this system construction.

This leads to some conclusions regarding the Scenarios:

- › Table 8 shows that the **3rd Scenario**, when considering all criteria, is the most attractive scenario for the company, managing to surpass the already defined “Good” performance levels for the company, despite being the least attractive scenario in terms of the “Supplier Cost” criterion, shown in Figure 34. Changing up the company’s business model, when it comes to the collections variety and quantity of items, has an important weight on the “Cost” criteria, but still, this scenario manages to be the most attractive.
- › The second most attractive scenario, that complies with the defined “Good” performance levels, is the **2nd scenario**, with an overall score of about 54%. In this scenario, there is no change in the “Brand Concept” criteria, (BC=0 in Table 8) because the business identity does not change that much, the changes are just on focusing on the more rotative items, and focusing more on the items that give the brand more uniqueness (flash items) rather than the exclusive ones. As for the Service, there is a change, that relates to the increase of the “Delivery Speed” of the orders. By investing on these criteria, the whole shopping experience in the company is expected to increase the value perception on the client’s way of viewing the company. This became clear in Figure 33, where the 2nd scenario surpasses the company “As-Is” Scenarios (“Neutral” Performance Level) and goes withing the “Good” Reference Level. And then, for the “Cost”, this 2nd scenario is the most attractive, as it surpasses the “Good” performance level,

whilst still offering a very interesting outcome for the company, in terms of overall performance, sales, and customer satisfaction.

- › And the “**As-Is**” **scenario** is the least attractive scenario, in comparison with the two others explained above. And this is why the weighing of the “Brand Concept”, “Service Quality” and “Suppliers Cost” do not differ much from the company’s “Neutral” performance levels. This means that the company is quite comfortable with this option, in terms of overall performance, customers perception, and financially speaking, but can do better. This is a proof that, by knowing more accurately what the customer wants, needs and in which conditions, the demand forecasting tool showed to be extremely powerful to increase the company’s operational efficiency and financial performance. All data gathered, either quantitative or qualitative, was essential to build consistent Alternative Scenarios for the company, which later proved to be relatively more attractive options for the company performance outcomes.

5.2.5. Sensitivity Analysis

The M-MACBETH software the sensitivity analyses to be performed. The systems enable the decision maker to see that, for every value change, either textual or graphical, there is also an instantaneously change reflected upon all other dependent values and their respective graphics.

Given the inputs of the company and previous analysis onto the Macbeth system, the Sensitivity Analysis graph for the “Brand Concept” criteria is the following:

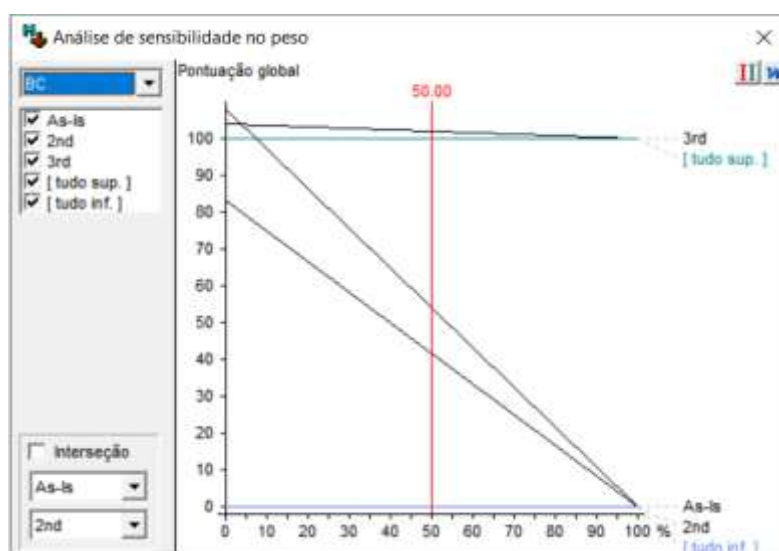


Figure 35 - Sensitivity Analysis for "BC"

Given that the weight of “BC” = 50, the most attractive scenario is the 3rd, followed by the 2nd and lastly by the “As-Is” Scenarios. However, if the company wished to alter the importance of the “BC” criteria, the scenarios attractiveness would change. If the “BC” weight was equal or less than 3.7, according to the system, the most attractive scenario would be the 2nd Scenario, whilst the “As-Is” continued to be the least attractive, as shown in Figure 36.

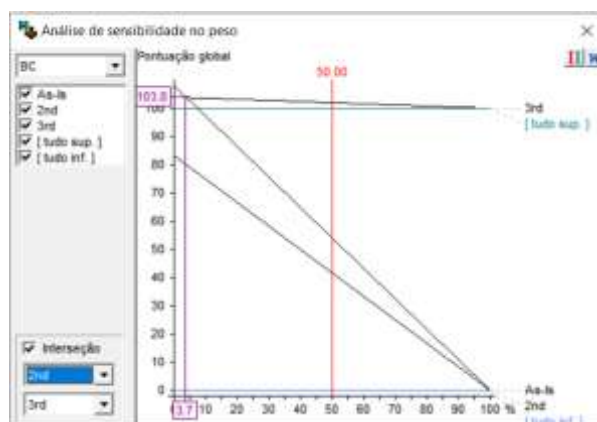


Figure 36 - Sensitivity Analysis for "BC" Weight Alterations

On the other hand, if the company wished to increase the weight of the “BC” criteria, there would not be any consequences regarding the attractiveness of all three scenarios. No matter how the red line goes forward, the best option will always be the 3rd scenario, followed by the 2nd.

Regarding the “Service Quality”, the default Sensitivity Analysis was the following:

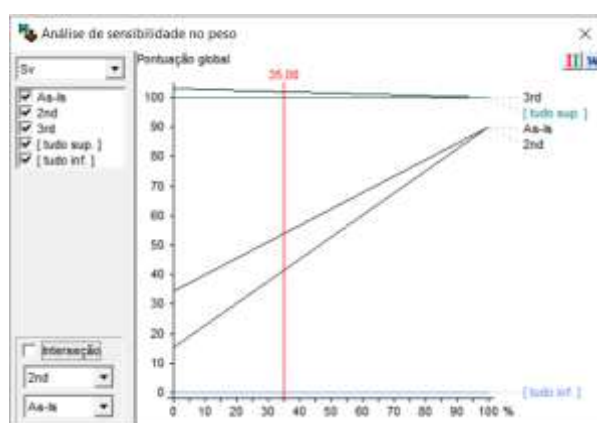


Figure 37 - Sensitivity Analysis for "Sv"

As it is possible to see, no matter how much the weight of this criteria changes (either for higher or lesser importance), they would not be any changes regarding the attractiveness of the scenarios, the 3rd being always the most attractive.

As for the “Delivery Speed” the conclusions are similar: regardless of the criteria weight the most attractive scenario will always be the 3rd scenario.

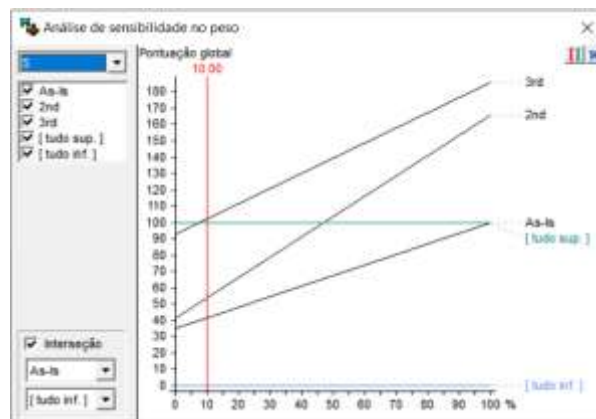


Figure 38 - Sensitivity Analysis for "S"

As for the “Supplier’s” Cost, and given the 5% weight of this criteria, the most attractive scenario would be the 3rd, as well.

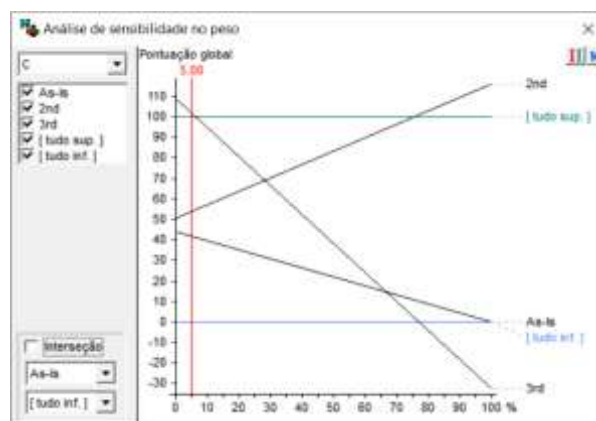


Figure 39 - Sensitivity Analysis of "C"

However, if the company desired to change the already mentioned weight of the criteria to a higher level of importance, alterations would take place. According to the following graph, if the company set the importance of this criteria to any value equal or higher than 28.2, the most attractive scenario would now be the 2nd, instead of the 3rd.

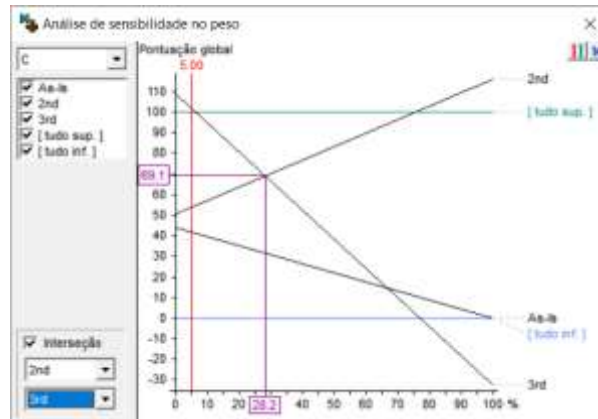


Figure 40 - Sensitivity Analysis for the "C" with Weight Alterations

Faced with this information, the company did not want to reconsider the weights of the criteria, because it would take a great change of the criteria weighting scale to change the final recommendations of the most attractive scenario suggested by the Macbeth System.

To summarize all the steps and processes included on this Macbeth Analysis, a diagram was retrieved from Bana e Costa et al. (2003), shown in Figure 41.

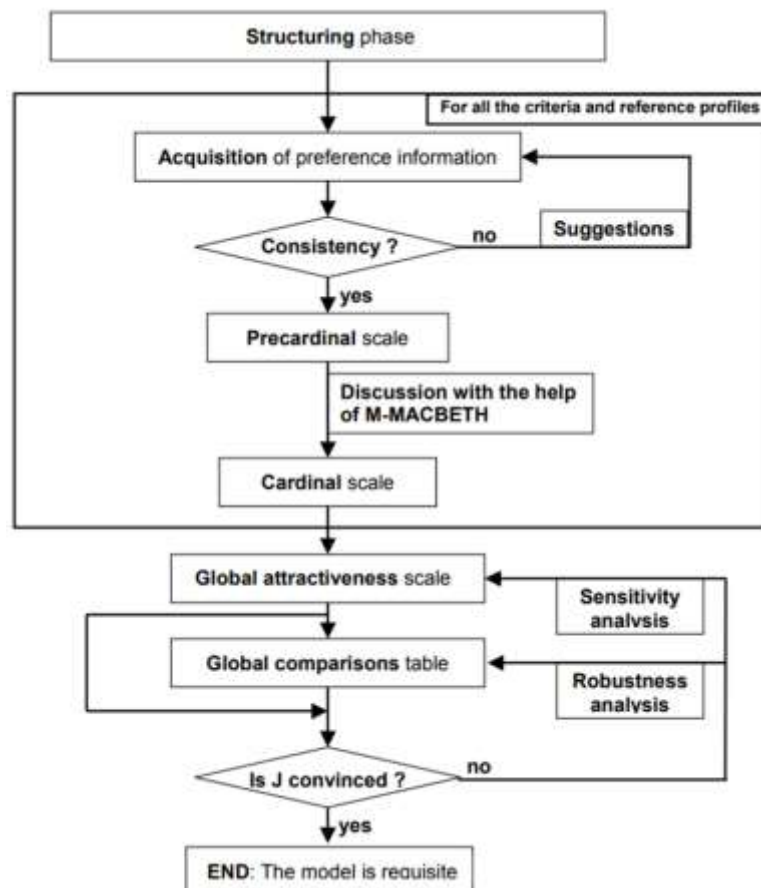


Figure 41 - Summary of the Macbeth Decision Aid Process

The **Structuring Phase** was where the problem was defined, as well as the criteria that would help shape the alternatives for the problem solving.

The **Acquisition of Preference Information** took place and was when the information retrieved from the company's CEO insights and from the conducted focus group were verified in terms of consistency.

After that was validated, the next step was to determine the **Precardinal Scale**, when the Macbeth Judgements Matrix were filled out with the Non-Cardinal Scale given by the system, ranging from "Non-Existing" to "Extreme", in what regardless the difference of attractiveness between the criteria.

Then, and with all the data gathered from the company, it was time the system started to build the **Cardinal Scale**, meaning turning all the precardinal data that served as an input, into the cardinal scale (criteria value functions and ponderations of criteria).

After those were validated by the company, a **Robustness Analysis** was conducted to evaluate the global attractiveness scale, which pointed the "As-Is" and 2nd Scenario as the most robust in terms of global attractiveness, given all criteria.

Then, and to conclude, a **Sensitivity Analysis** was performed to evaluate if and how the uncertainty of the different criteria could have a change on the attractiveness of each scenario. This analysis was important to understand that those changes would only be felt by majorly changing the weighting importance of the "Suppliers Cost". With this, the company decided to maintain the initial weights, leaving space for the conclusions to take place.

In the next chapter, conclusions about the global attractiveness of each scenario, especially in what regard this study research question (operational efficiency and financial performance), will be taken.

6. CONCLUSIONS

This study proposed to study the Financial and Operational benefits of incorporating Demand Forecasting tools onto the Vintage Bazaar Company.

To do so, and given the knowledge acquired through the Literature Review about how Demand Forecast can, in fact, affect the last Mile Logistics performance, a Multi-Criteria Decision-Making System was chosen. Other than still not have been applied in this fashion industry and with the purposes listed on this study's research question, MACBETH proved to be the simplest system that could analyse a given number of qualitative alternatives and transform those into numerical scores with the respective weights, whilst automatically detecting inconsistencies.

So, by aligning the qualitative data gathered from interviews, focus group, costumers' feedback and from my experience with the quantitative historical data from the Company's ERP system, the obtained results after the MACBETH system were disparate:

- › In terms of **operational efficiency**, the most suitable scenario for the company was proved to be the 3rd Scenario, where the company's supply chain would flow consistently, with minimal disruptions, best information flux, and more satisfied customers.
- › On the other hand, and in terms of **financial efficiency**, the scenario that fitted the company the best was the 2nd. Here, the company would focus more on the products that are most sold and which have bigger profit margin, turning collections less costly, and with minimal space for stock inefficiencies.

Given these results, it is my opinion that the implementation of this form of demand forecasting, by implementing any one of the two scenarios was proven to add great value to the company. When comparing the "As-Is" Scenario with the two proposed alternatives, which were a form of Demand Forecasting (based on quantitative historical data and qualitative forecasts), it has been proven that the company has only to benefit in investing onto its strengths – Brand Concept, Quality Service and Speed of Delivery – and onto its weaknesses – Cost. This last criterion is considered as a "relative" disadvantage, because, if the company decides to invest into the two alternative scenarios, the cost will in fact increase, nonetheless, the return of investment will also follow with time.

So, the first major takeaway of this study is that, yes, there are in fact benefits concerning the operational efficiency and financial performance of the Vintage Bazaar company, when applying any kind of demand forecasting tool, either it is by organising the historical data from the previous collections to

predict future sales or perform analysis to discover which product will continue to be the most rotative and most valued to the company based on sales history, for instance.

This study showed that the 2nd Scenario, regarding the operational efficiency, would enable the company to eliminate and reduce almost all the constraints listed for its “As-Is” scenario: less waiting times from the suppliers side (since there would be a reduction of the number of suppliers and an increase of each order quantity, rather just buying small quantities to many suppliers); reduce the probability for stockout or overstocks (based on the historical sales, an analysis for the future sales is possible); the company would not lack space (with the proposed central warehouse with sufficient space to hang all clothing items); decrease of obsolescence of products would be felt (with the Green Week event happening twice a year) and final, and increase of the distribution process would be felts by implementing the pickup points through all country. So, in general, the overall flow of the supply chain, and its processes is expected to increase radically if the company goes for this scenario. And all of this, whilst maintaining a competitive financial performance. This study proved that the company could support the extra financial investment that this scenario comprises, comparing to the “As-Is” Scenario, and more than that, and an attractive financial outcome is expected with the proposed operational changes. As previously mentioned in the Literature Review, the Last Mile Logistics represents between 13-75% of all supply chain costs, so the company, would eventually decrease it’s costs and start to get the return of its operational investment.

The 3rd Scenario, nevertheless, goes further in leveraging the strengths of the brand– the Brand Concept and Service Quality. The creation of a Special Collection Line, and implementation of Green Sustainability Policies, would maximise even more the company’s most valuable strengths, and consequently, satisfying the costumers. However, the financial effort that the company needed to put into this scenario surpasses the company’s capabilities now.

Given this, it is my opinion that the best scenario is the 3rd, nonetheless, it is a long-term objective, given Vintage Bazaar is yet a small company, starting to growth the brand and expanding its worldwide market, and still reinventing and discovering itself in various areas. So, after weighing all this study variables, it is my conclusion that Vintage Bazaar Company started by implementing the 2nd Scenario Alternative as a short-term objective, however, aiming to implement the 3rd into the further future, to get the maximum operational and financial benefits.

7. LIMITATIONS

During this research project, some limitations were felt, as listed below:

- › Conventional MCDM approach can lack a general paradigm for specific real-world problems.

Literature has been consensual in recognizing that conventional MCDM lacks a general paradigm for specific real-world problems, as many of the arising problems cannot be precisely defined nor represented in a crisp value (Tzeng & Huang 2011; Kahraman 2008; Bellman and Zadeh 1970). To deal with the unpredictability and imprecision present in the constraints, Bellman and Zadeh (1970) introduced the fuzzy set theory as a modelling tool for complex systems that are controlled by humans but are hard to define. Machine intelligence struggles to account for subjectivity when responding to the fuzzy instructions given by human intelligence, which makes fuzzy decision-making so necessary. Nonetheless, the implementation of Machine intelligence would compromise this study's results, as they would deviate attentions to the essential subject of this study, which is to focus more on the operational and practical side of the project and not into the technical one, involving programming or language writing.

- › Limited number of people participating on the Focus Group

For the qualitative data gathering, a focus group was conducted, with only six participants. This was because each participant was chosen carefully to represent each of the existing departments in the company. Therefore, it was crucial that each participant had the time and space to give its opinions and contributions.

- › Only historical quantitative data from the year of 2022 and 2023 was considered.

With the fashion industry being in constant change, and also the company business model, it was assumed, in this study, that only more recent data was considered as a support for the Company presentation, supply chain construction and ACB analysis. In this last only, only historical data was considered, and no sales forecast was included.

- › MACBETH beta version can only support 4 criteria.

To conduct this study, the academical version of this system was used, which limits the number of criteria to four.

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APPENDICES

Appendix 1 – Application of SAW Methodology in Fashion Industry

Title	Purpose	Methodology	Reference
<i>Selection of Raw Materials in Textile Spinning Industry Using Fuzzy Multi-criteria Decision Making Approach</i>	Selection of raw materials in textile spinning industry	fuzzy Analytic Hierarchy Process (AHP)	Majumdar, A. (2010). Selection of raw materials in textile spinning industry using fuzzy multi-criteria decision making approach. <i>Fibers and Polymers</i> , 11(1), 121-127. https://doi.org/10.1007/s12221-010-0121-x
<i>Decision making on supplier selection based on social, ethical, and environmental criteria: A study in the textile industry</i>	Supplier selection process when outsourcing activities in the textile industry	Copeland method to aggregate criteria / AHP method for defining the criteria weights / ELECTRE-TRI to classify suppliers	Guarnieri, P., & Trojan, F. (2019). Decision making on supplier selection based on social, ethical, and environmental criteria: A study in the textile industry. <i>Resources, Conservation and Recycling</i> , 141, 347-361. https://doi.org/10.1016/j.resconrec.2018.10.023
<i>Multiple-Criteria Decision Support for a Sustainable Supply Chain: Applications to the Fashion Industry</i>	Help companies develop effective models for timely decision-making involving sustainable supply chain management strategies	Analytic Hierarchy Process (AHP) and further extend to the ANP model to capture the relationships and interdependencies among the elements	Poh, K. L., & Liang, Y. (2017). Multiple-criteria decision support for a sustainable supply chain: Applications to the fashion industry. <i>Informatics</i> , 4(4), 36. https://doi.org/10.3390/informatics4040036
<i>Impacts and insights of circular business models' outsourcing decisions on textile and fashion waste management: A multi-criteria decision model for sorting circular strategies</i>	Purpose a multi-criteria decision model to support fashion industry companies in deciding whether to outsource or insource circular strategies	Multicriteria Analytic Hierarchy Process (AHP) method to select one of the options identified in the reverse logistics scope	Oliveira Silva, W. D., & Morais, D. C. (2022). Impacts and insights of circular business models' outsourcing decisions on textile and fashion waste management: A multi-criteria decision model for sorting circular strategies. <i>Journal of Cleaner Production</i> , 370, 133551. https://doi.org/10.1016/j.jclepro.2022.133551
<i>Traceability management systems and capacity building as new approaches for improving sustainability in the fashion multi-tier supply chain</i>	Conduct an analysis on sustainability performance in the fast fashion industry with a multi-tier supply chain approach and evolutionary perspective over time	AHP methodology to assess which company has reached the best performance according to sustainability criteria	Meijas, A. M., Bellas, R., Pardo, J. E., & Paz, E. (2019). Traceability management systems and capacity building as new approaches for improving sustainability in the fashion multi-tier supply chain. <i>International Journal of Production Economics</i> , 217, 143-158. https://doi.org/10.1016/j.ijpe.2019.03.022
<i>Identification of best reverse value chain alternatives. A study of Romanian used clothing industry</i>	Explore and identify the best reverse value chain alternatives for the clothing industry	AHP methodology	Meijas, A. M., Bellas, R., Pardo, J. E., & Paz, E. (2019). Traceability management systems and capacity building as new approaches for improving sustainability in the fashion multi-tier supply chain. <i>International Journal of Production Economics</i> , 217, 143-158. https://doi.org/10.1016/j.ijpe.2019.03.022
<i>A risk-based hybrid multi-criteria approach to support managers in the industrial location selection in developing countries: A case study of textile sector in Africa</i>	Support business leaders in the optimal foreign locations, integrating multi-criteria decision-making models	AHP methodology	Bait, S., Marino Lauria, S., & Schiraldi, M. M. (2022). A risk-based hybrid multi-criteria approach to support managers in the industrial location selection in developing countries: A case study of textile sector in Africa. <i>Journal of Cleaner Production</i> , 335, 130325. https://doi.org/10.1016/j.jclepro.2021.130325

Appendix 2 - Interview Questions

- (1) What are the major activities and concepts of the business?
- (2) What is the company's vision, mission, and future goals?
- (3) How many suppliers does VB has and how is their relationship?
- (4) What are the current major constraints in the business?

- (5) What were the business implications brought from the Covid-19 Pandemic?
- (6) How are deliveries made and by what partners?
- (7) How are deliveries and order quantities put? Does the company have any form of demand forecasting?
- (8) Is there space for a reverse logistic in the company supply chain?
- (9) What are the next steps in the business model?

Appendix 3 – General Sales Analysis by Categories in 2022

VINTAGE BAZAAR - SOC.UNIP., LDA

Análise de Vendas					
Categoria, Família - 01 resumido a Família - 1.1					
Período: 01/01/2022 Até 31/12/2022; Moeda: EUR					
sem grelha; Tipos de Documentos:					
DEVCR,DEVOL,DEVSH,FACHT,FACIV,FACR,FACT,FACTS,FTR,FTRSH,N/CRE,N/DEB,NCCR,NCRES,NDEBO,TAL,V/DIN,VDCRI,					
Incluir Artigos inativos; Incluir Artigos ref.					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadoria					
Família: N/D					
N/D	N/D	1,000	22,76	-6,83	15,93
Total Família:		1,000	22,76	-6,83	15,93
Família: 01 - VESTUÁRIO					
N/D	N/D	8 011,000	291 836,71	-56 654,31	235 182,40
BLU	BLUSA	3 749,000	131 054,64	-9 822,29	121 232,35
CALC	CALÇÃO	473,000	15 835,27	-1 871,95	13 963,32
CALÇA	CALÇA	4 033,000	129 677,80	-5 746,85	123 930,95
CAM	CAMISA	1 006,000	44 244,79	-2 142,06	42 102,73
CAMI	CAMISOLA	839,000	35 396,58	-766,20	34 630,38
CAS	CASACO	2 286,000	120 150,65	-1 263,16	118 106,49
COLET	COLETE	40,000	1 903,18	-53,26	1 849,92
JUMP	JUMPSUIT	684,000	34 009,20	-3 837,07	30 172,13
KIM	KIMONO	3,000	229,26	0,00	229,26
PON	PONCHO	63,000	3 492,66	-596,14	2 896,52
SAI	SAIA	1 372,000	61 885,43	-3 048,75	58 836,68
TOP	TOP	2 135,000	69 238,41	-4 130,79	65 107,62
VEST	VESTIDO	7 275,000	347 233,59	-35 315,52	311 918,07
Total Família:		31 969,000	1 286 497,17	-128 248,35	1 158 248,82
Família: 02 - ACESSÓRIOS					
N/D	N/D	6 076,000	83 182,81	-5 858,06	77 324,75
10	CINTO	234,000	8 374,83	-382,00	7 992,83
11	COLAR	689,000	14 509,98	-478,33	14 031,65
BRI	BRINCO	135,000	2 555,89	-45,71	2 510,18
CHA	CHAPÉU	124,000	3 085,69	-59,01	3 026,68
ECH	ÉCHARPE	308,000	6 079,84	-199,16	5 880,68
LEN	LENÇO	28,000	452,08	-9,25	442,83
MALA	MALA	297,000	15 043,08	-282,15	14 760,93
PARE	PAREO	119,000	4 209,85	-424,54	3 785,31
PUL	PULSEIRA	59,000	1 389,05	-66,06	1 322,99
Total Família:		8 069,000	138 882,90	-7 804,27	131 078,63
Família: 03 - DECORAÇÃO					
N/D	N/D	42,000	1 722,75	-59,67	1 663,08
Total Família:		42,000	1 722,75	-59,67	1 663,08
Família: 05 - CALÇADO					
N/D	N/D	54,000	2 299,06	-289,24	2 009,82
BOT	BOTAS	278,000	20 700,66	-471,25	20 229,41
SAPA	SAPATOS	236,000	11 793,01	-249,02	11 543,99
Total Família:		568,000	34 792,73	-1 009,51	33 783,22
Família: 08 - CINTO					
N/D	N/D	82,000	2 261,79	-38,53	2 223,26
Total Família:		82,000	2 261,79	-38,53	2 223,26
Total Categoria:		40 731,000	1 464 180,10	-137 167,16	1 327 012,94
Total:		40 731,000	1 464 180,10	-137 167,16	1 327 012,94

Appendix 4 – Sales Analysis of the Online Store in 2020

VINTAGE BAZAAR - SOC.UNIP., LDA					
Análise de Vendas					
Artigo					
Período: 01/01/2020 Até 31/12/2020; Moeda: EUR					
sem grelha; Tipos de Documentos:					
DEVCR,DEVOL,DEVSH,FACHT,FACIV,FACR,FACT,FACTS,FTR,FTRSH,NCRE,NDEB,NCCR,NCRES,NDEBD,TAL,V/DIN,VDCRI,					
Incluir Artigos Inativos; Incluir Artigos ref.					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Total:		8 622,000	478 497,29	-134 872,57	343 624,71

Appendix 5 – Sales Analysis of the Online Store in 2021

VINTAGE BAZAAR - SOC.UNIP., LDA					
Análise de Vendas					
Artigo					
Período: 01/01/2021 Até 31/12/2021; Moeda: EUR					
sem grelha; Tipos de Documentos:					
DEVCR,DEVOL,DEVSH,FACHT,FACIV,FACR,FACT,FACTS,FTR,FTRSH,NCRE,NDEB,NCCR,NCRES,NDEBD,TAL,V/DIN,VDCRI,					
Incluir Artigos Inativos; Incluir Artigos ref.					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
ZNPEACHCADERA	CADERA VERGA GRANDE CÔR NATURAL/BRANCA	1,000	508,10	-253,05	253,05
Total:		17 461,000	900 658,20	-105 241,84	495 416,36

Appendix 6 – Sales Analysis of the Online Store in 2022

VINTAGE BAZAAR - SOC.UNIP., LDA					
Análise de Vendas					
Artigo					
Período: 01/01/2022 Até 31/12/2022; Moeda: EUR					
sem grelha; Tipos de Documentos:					
DEVCR,DEVOL,DEVSH,FACHT,FACIV,FACR,FACT,FACTS,FTR,FTRSH,NCRE,NDEB,NCCR,NCRES,NDEBD,TAL,V/DIN,VDCRI,					
Incluir Artigos Inativos; Incluir Artigos ref.					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Total:		17 115,000	618 175,67	-81 780,22	536 395,45

Appendix 7 –Sales Analysis of the Santo Amaro de Oeiras Store in 2020

VINTAGE BAZAAR - SOC UNIP., LDA

Análise de Vendas					
Artigo					
Período: 01/01/2020 Até: 31/12/2020; Moeda: EUR					
sem grafico; Tipos de Documentos:					
DEVOR,DEVOL,DEVSH,FACHT,FACHV,FACR,FACT,FACTS,FTR,FTRSH,NCRE,NDES,NCCR,NCRES,NDESD,TAL,V,VDN,VOCR,					
(Incluir Artigos negativos; Incluir Artigos ref)					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	3,000	58,53	0,00	58,53
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	1,000	18,51	0,00	18,51
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	2,000	39,02	0,00	39,02
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	2,000	42,28	0,00	42,28
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	1,000	21,14	0,00	21,14
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	1,000	18,51	0,00	18,51
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	2,000	39,02	-12,55	18,50
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	3,000	48,33	-15,44	30,89
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	1,000	15,45	0,00	15,45
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	1,000	15,45	0,00	15,45
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	1,000	17,88	-8,94	8,94
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	3,000	77,24	-4,83	72,41
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	4,000	46,31	-21,81	24,50
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	1,000	15,44	-4,83	10,61
Total:		4 328,000	211 462,84	-48 026,46	163 436,38

Appendix 8 –Sales Analysis of the Santo Amaro de Oeiras Store in 2021

VINTAGE BAZAAR - SOC UNIP., LDA

Análise de Vendas					
Artigo					
Período: 01/01/2021 Até: 31/12/2021; Moeda: EUR					
sem grafico; Tipos de Documentos:					
DEVOR,DEVOL,DEVSH,FACHT,FACHV,FACR,FACT,FACTS,FTR,FTRSH,NCRE,NDES,NCCR,NCRES,NDESD,TAL,V,VDN,VOCR,					
(Incluir Artigos negativos; Incluir Artigos ref)					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	4,000	78,04	-5,85	72,19
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	2,000	18,51	0,00	18,51
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	2,000	39,02	0,00	39,02
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	3,000	58,53	-5,85	52,68
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	3,000	38,53	-5,85	32,68
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	1,000	14,63	0,00	14,63
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	2,000	29,26	0,00	29,26
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	3,000	43,89	0,00	43,89
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	1,000	14,63	0,00	14,63
VSSMECHBATSUN	ÉCHARPE BATEK ROSA-UNICO	2,000	29,26	0,00	29,26
Total:		5 981,000	229 362,81	-34 489,87	194 872,94

Appendix 9 – Sales Analysis of the Santo Amaro de Oeiras Store in 2022

[illegible]

Appendix 10 – Sales Analysis of the Chiado Store in 2020

[illegible]

Appendix 11 – Sales Analysis of the Chiado Store in 2021

[illegible]

Appendix 12 – Sales Analysis of the Chiado Store in 2022

VINTAGE BAZAAR - SOC.UNIP., LDA

Análise de Vendas

Artigo

Período: 01/01/2022 Até 31/12/2022; Moeda: EUR

-sem grelha; Tipos de Documentos:

DEVCR.DEVOL.DEVSH.FACHT.FACIV.FACR.FACT.FACTS.FTR.FTRSH.NCR.NDEB.NCCR.NCRES.NDEBD.TAL.V.D.IN.VOCPRI.

Incluir Artigos inativos; Incluir Artigos ref.

Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Total:		8 886.000	314 346,27	-15 964,57	299 281,70

Appendix 13 – Sales Analysis of the Porto Store in 2021

[illegible]

Appendix 14 – Sales Analysis of the Porto Store in 2022

VINTAGE BAZAAR - SOC UNIP, LDA

Análise de Vendas

Artigo

Período: 01/01/2022 Até: 31/12/2022; Moeda: EUR

sem grênis, Tipos de Documentos:

DEVOR,DEVOL,DEVSH,FACHT,FACIV,FACIR,FACT,FACTS,FTR,FTRSH,NCRE,NVDEB,NCCR,NCRS,NDEBD,TAL,VDIR,VOCRI,
Incluir Artigos Inativos, Incluir Artigos rel

Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Total:		5.021,000	100.048,00	-11.131,00	100.016,00

Appendix 15 – All Stores Sales Analysis for Collection “Tica”

VINTAGE BAZAAR - SOC.UNIP., LDA					
Análise de Vendas					
Categoria, Família - 01 resumo a Família - 1.1					
Período: 28/07/2022 Até 31/08/2022; Moeda: EUR					
sem grelha; Tipos de Documentos:					
DEVCR,DEVOL,DEVSH,FACHT,FACIV,FACR,FACT,FACTS,FTR,FTRSH,N/CRE,N/DEB,NCCR,NCRS,NDEB,TAL,V/DIN,VDCRL					
Incluir Artigos inativos; Incluir Artigos ref.					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadoria					
Família: 01 - VESTUÁRIO					
N/D	N/D	194,000	7 625,76	-2 303,37	5 322,39
BLU	BLUSA	386,000	17 410,95	-4 663,48	12 747,47
CALC	CALÇÃO	88,000	3 225,16	-823,88	2 401,28
CALÇA	CALÇA	251,000	10 825,42	-1 026,25	9 799,17
CAM	CAMISA	39,000	1 730,74	-157,37	1 582,37
CAMI	CAMISOLA	0,000	-47,15	0,00	-47,15
CAS	CASACO	22,000	1 079,62	-4,72	1 074,90
JUMP	JUMPSLET	71,000	2 944,56	-382,63	2 561,93
SAI	SAIA	103,000	4 501,46	-410,30	4 091,16
TOP	TOP	274,000	8 543,39	-1 506,93	7 036,46
VEST	VESTIDO	969,000	46 543,42	-12 469,20	34 074,22
Total Família:		2 407,000	104 292,35	-33 746,33	80 546,02
Família: 02 - ACESSÓRIOS					
N/D	N/D	443,000	5 626,94	-431,52	5 195,42
TI	CINTO	32,000	1 194,81	-49,21	1 145,60
COLAR	COLAR	140,000	3 496,85	-197,01	3 300,84
BRIL	BRINCO	14,000	283,82	-5,37	278,45
CHA	CHAPÉU	16,000	377,28	0,00	377,28
LEN	LENÇO	3,000	48,79	0,00	48,79
MALA	MALA	37,000	1 815,37	-21,21	1 794,16
PARA	PARA	95,000	3 351,37	-197,02	3 154,35
PUL	PULSEIRA	32,000	693,30	-10,89	682,41
SAN	SANDÁLIAS	16,000	963,43	-12,84	950,59

Appendix 16 – All Stores Sales Analysis for Collection “Maria”

VINTAGE BAZAAR - SOC.UNIP., LDA					
Análise de Vendas					
Categoria, Família - 01 resumo a Família - 1.1					
Período: 01/09/2022 Até 14/09/2022; Moeda: EUR					
sem grelha; Tipos de Documentos:					
DEVCR,DEVOL,DEVSH,FACHT,FACIV,FACR,FACT,FACTS,FTR,FTRSH,N/CRE,N/DEB,NCCR,NCRS,NDEB,TAL,V/DIN,VDCRL					
Incluir Artigos inativos; Incluir Artigos ref.					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadoria					
Família: 01 - VESTUÁRIO					
N/D	N/D	81,000	2 516,49	-486,63	1 929,86
BLU	BLUSA	133,000	5 350,76	-610,68	4 740,07
CALC	CALÇÃO	22,000	770,77	-298,89	511,88
CALÇA	CALÇA	75,000	3 403,77	-367,61	3 036,16
CAM	CAMISA	43,000	1 622,76	-71,55	1 551,21
CAMI	CAMISOLA	10,000	460,51	-15,61	444,90
CAS	CASACO	121,000	6 385,36	-343,43	6 041,93
COLET	COLETE	11,000	572,34	-17,86	554,48
JUMP	JUMPSLET	77,000	3 877,91	-126,21	3 751,70
SAI	SAIA	83,000	3 975,02	-317,86	3 657,16
TOP	TOP	36,000	1 277,11	-364,62	912,49
VEST	VESTIDO	225,000	10 880,07	-1 580,50	9 299,57
Total Família:		895,000	41 088,86	-8 063,98	33 024,87
Família: 02 - ACESSÓRIOS					
N/D	N/D	160,000	1 967,42	-229,36	1 738,07
TI	CINTO	11,000	415,45	-123,42	292,03
COLAR	COLAR	36,000	721,22	-76,36	644,87
BRIL	BRINCO	1,000	17,89	-6,37	11,52
CHA	CHAPÉU	1,000	22,76	-8,83	13,93
ECH	ECARPE	18,000	381,23	-8,43	372,80
LEN	LENÇO	1,000	13,45	0,00	13,45
MALA	MALA	18,000	833,61	-33,66	800,15
PARA	PARA	22,000	780,04	-236,06	543,98
PUL	PULSEIRA	7,000	138,00	-29,25	108,75
Família: 03 - CALÇADO					
SAN	SANDÁLIAS	6,000	385,18	0,00	385,18

Appendix 17 – All Stores Sales Analysis for Collection “Mafalda”

VINTAGE BAZAAR - SOC UNIP., LDA					
Análise de Vendas					
Categoria, Família - 01 resumo a Família - 1.1					
Período: 15/09/2022 Até: 22/09/2022; Moeda: EUR					
sem grelha; Tipos de Documentos: DEVCR,DEVOL,DEVSH,FACHT,FACV,FAOR,FACT,FACTS,FTR,FTRSH,NCRE,NDEB,NCCR,NCRS,NDEBO,TAL,VIDIN,VDCRI, Incluir Artigos inativos; Incluir Artigos ref.					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadorias					
Família: 01 - VESTUÁRIO					
N/D	N/D	30,000	1 246,36	-235,20	1 011,16
BLU	BLUSA	190,000	4 306,14	-260,79	4 045,36
CALC	CALÇÃO	2,000	6,01	-7,31	-1,30
CALÇA	CALÇA	83,000	4 066,78	-162,18	3 877,60
CAM	CAMISA	12,000	572,22	-4,72	567,50
CAMI	CAMISOLA	10,000	373,38	-14,31	359,07
CAS	CASACO	134,000	7 486,94	-360,10	7 096,84
COLET	COLETE	1,000	40,16	0,00	40,16
JUMP	JUMPSUIT	55,000	2 913,78	-138,52	2 774,23
SAI	SAIA	81,000	3 050,86	-120,48	2 910,37
TOP	TOP	68,000	2 886,43	-202,21	2 494,22
VEST	VESTIDO	123,000	6 122,56	-702,50	5 420,06
Total Família:		704,000	32 871,30	-3 271,88	30 599,42
Família: 02 - ACESSÓRIOS					
N/D	N/D	30,000	548,81	4,21	553,02
CE	CINTO	5,000	167,00	-44,88	142,12
FI	COLAR	27,000	485,51	-33,01	452,50
BR	BRINCO	4,000	95,35	-20,31	75,04
CHA	CHAPÉU	32,000	818,15	-15,12	803,03
ECH	ÉCHARPE	24,000	513,85	-7,48	506,37
MALA	MALA	21,000	1 408,85	-41,30	1 367,55
PARA	PARAÓ	1,000	35,77	-10,73	25,04
PUL	PULSEIRA	1,000	18,51	-5,85	12,66
Família: 05 - CALÇADO					
BOT	BOTAS	16,000	1 302,48	-14,48	1 288,00
SAPA	SAPATOS	46,000	3 277,92	-75,13	3 202,79
SAN	SANDALIAS	2,000	126,45	-4,42	122,03

Appendix 18 – All Stores Sales Analysis for Collection “Happy Friday 01”

VINTAGE BAZAAR - SOC UNIP., LDA					
Análise de Vendas					
Categoria, Família - 01 resumo a Família - 1.1					
Período: 23/09/2022 Até: 28/09/2022; Moeda: EUR					
sem grelha; Tipos de Documentos: DEVCR,DEVOL,DEVSH,FACHT,FACV,FAOR,FACT,FACTS,FTR,FTRSH,NCRE,NDEB,NCCR,NCRS,NDEBO,TAL,VIDIN,VDCRI, Incluir Artigos inativos; Incluir Artigos ref.					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadorias					
Família: 01 - VESTUÁRIO					
N/D	N/D	34,000	1 937,41	-932,36	1 005,06
BLU	BLUSA	86,000	2 767,30	-32,20	2 735,10
CALC	CALÇÃO	1,000	36,77	-21,46	14,31
CALÇA	CALÇA	56,000	2 420,01	-4,31	2 415,70
CAM	CAMISA	21,000	1 441,66	-6,27	1 435,39
CAMI	CAMISOLA	22,000	878,38	-25,04	853,34
CAS	CASACO	60,000	4 473,16	-85,22	4 407,94
COLET	COLETE	8,000	380,87	-4,72	382,25
JUMP	JUMPSUIT	31,000	1 811,30	-38,27	1 675,03
SAI	SAIA	41,000	1 838,10	-14,16	1 823,94
TOP	TOP	12,000	382,91	-7,81	375,10
VEST	VESTIDO	79,000	3 925,81	-384,37	3 541,44
Total Família:		474,000	21 896,83	-487,78	20 199,05
Família: 02 - ACESSÓRIOS					
N/D	N/D	74,000	600,00	-25,52	574,48
CE	CINTO	4,000	148,60	-33,68	115,94
FI	COLAR	22,000	489,70	-32,53	457,17
BR	BRINCO	1,000	17,69	-5,37	12,32
CHA	CHAPÉU	13,000	335,28	0,00	335,28
ECH	ÉCHARPE	5,000	121,81	0,00	121,81
MALA	MALA	13,000	968,37	-14,15	954,22
PUL	PULSEIRA	1,000	19,51	-5,85	13,66
Família: 05 - CALÇADO					
N/D	N/D	5,000	227,63	0,00	227,63
BOT	BOTAS	16,000	1 302,48	-30,20	1 266,26
SAPA	SAPATOS	17,000	819,48	-4,83	812,65
SAN	SANDALIAS	0,000	-68,33	0,00	-68,33

Appendix 19 – All Stores Sales Analysis for Collection “Carminho”

VINTAGE BAZAAR - SOC.UNIP., LDA

Análise de Vendas
 Categoria, Família - 01 resumido a Família - 1.1
 Período: 03/09/2022 Até: 06/10/2022; Moeda: EUR
 sem grelha; Tipos de Documentos:
 DEVCR,DEVOL,DEVSH,FACHT,FACV,FACR,FACT,FACTS,FTR,FTRSH,NCRE,NDEB,NCCR,NCRS,NDEB,TAL,VDIR,VDCR
 Incluir Artigos inativos; Incluir Artigos ref.

Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadoria					
Família: 01 - VESTUÁRIO					
N/D	N/D	30,000	1 452,08	34,63	1 417,45
BLU	BLUSA	120,000	4 696,96	-57,41	4 639,55
CALÇ	CALÇA	2,000	47,15	7,48	39,67
CALÇ	CALÇA	97,000	4 644,23	-47,45	4 596,78
CAM	CAMISA	48,000	2 177,44	-42,94	2 134,50
CAM	CAMISOLA	49,000	2 255,87	-20,61	2 235,26
CAS	CASACO	101,000	7 614,93	-198,47	7 416,46
COLET	COLETE	4,000	163,41	5,00	158,41
JUMP	JUMPSUIT	40,000	2 998,19	-46,82	2 951,37
SAI	SAIA	70,000	3 231,50	-113,31	3 118,19
TOP	TOP	10,000	201,67	1,46	200,21
VEST	VESTIDO	180,000	7 963,87	-241,65	7 722,22
Total Família:		793,000	36 942,18	-739,42	36 202,76
Família: 02 - ACESSÓRIOS					
N/D	N/D	100,000	942,37	-32,51	909,86
IO	CINTO	3,000	96,38	-11,22	85,16
TI	COLAR	10,000	290,28	-6,37	283,91
BRI	BRINCO	1,000	17,88	-1,79	16,09
CHA	CHAPEU	18,000	496,96	-5,52	491,44
ECH	ÉCHARPE	22,000	442,31	-5,37	436,94
MALA	MALA	10,000	424,65	9,11	415,54
PARF	PARFUM	1,000	39,77	-10,73	29,04
PUL	PULSEIRA	2,000	55,28	8,88	46,40
Família: 03 - CALÇADO					
N/D	N/D	4,000	191,86	-28,78	163,08
BOT	BOTAS	18,000	949,68	-14,48	935,20
SAPA	SAPATOS	9,000	341,45	-8,83	332,62
SAN	SANDÁLIAS	2,000	128,49	0,00	128,49

Appendix 20 – All Stores Sales Analysis for Collection “Happy Friday 02”

VINTAGE BAZAAR - SOC.UNIP., LDA

Análise de Vendas
 Categoria, Família - 01 resumido a Família - 1.1
 Período: 07/10/2022 Até: 12/10/2022; Moeda: EUR
 sem grelha; Tipos de Documentos:
 DEVCR,DEVOL,DEVSH,FACHT,FACV,FACR,FACT,FACTS,FTR,FTRSH,NCRE,NDEB,NCCR,NCRS,NDEB,TAL,VDIR,VDCR
 Incluir Artigos inativos; Incluir Artigos ref.

Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadoria					
Família: 01 - VESTUÁRIO					
N/D	N/D	18,000	843,11	0,00	843,11
BLU	BLUSA	77,000	3 065,43	-47,81	3 017,62
CALÇ	CALÇA	36,000	2 633,53	-25,86	2 607,67
CAM	CAMISA	26,000	1 061,00	-23,27	1 037,73
CAM	CAMISOLA	33,000	1 562,51	-33,18	1 529,33
CAS	CASACO	114,000	6 124,99	-93,69	6 031,30
COLET	COLETE	4,000	188,60	0,00	188,60
JUMP	JUMPSUIT	23,000	1 216,19	-27,85	1 188,34
PON	PONCHO	2,000	95,94	0,00	95,94
SAI	SAIA	41,000	1 937,30	5,20	1 942,50
TOP	TOP	8,000	312,98	-9,51	303,47
VEST	VESTIDO	87,000	3 809,56	-66,51	3 743,05
Total Família:		489,000	22 891,14	-322,28	22 568,86
Família: 02 - ACESSÓRIOS					
N/D	N/D	89,000	654,70	0,00	654,70
IO	CINTO	1,000	0,00	11,22	11,22
TI	COLAR	11,000	203,27	0,00	203,27
CHA	CHAPEU	5,000	143,07	-6,18	136,89
ECH	ÉCHARPE	15,000	328,45	-13,33	315,12
MALA	MALA	10,000	705,89	-14,15	691,74
Família: 03 - CALÇADO					
N/D	N/D	7,000	331,69	-31,54	300,15
BOT	BOTAS	2,000	144,72	-14,48	130,24
SAPA	SAPATOS	36,000	2 253,57	-61,47	2 192,10

Appendix 21 – All Stores Sales Analysis for Collection “Rita”

VINTAGE BAZAAR - SOC.UNIP., LDA					
Análise de Vendas					
Categoria: Família - 01 resumido a Família - 1.1					
Período: 13/10/2022 Até 19/10/2022; Moeda: EUR					
sem grelha: Tipos de Documentos: DEVCR,DEVOL,DEVSH,FACHT,FACV,FACR,FACT,FACTS,FTR,FTRSH,NCRE,NDEB,NCCR,NCRES,NDEBO,TAL,VIN,VDCRI, incluir Artigos Inativos, incluir Artigos ref.					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadoria					
Família: 01 - VESTUÁRIO					
N/D	N/D	24,000	1 080,89	-5,86	1 074,93
BLU	BLUSA	135,000	4 337,32	-145,57	4 211,95
CALC	CALÇA	9,000	381,83	-17,56	374,29
CALÇA	CALÇA	30,000	2 488,99	-73,12	2 385,87
CAM	CAMISA	35,000	1 575,86	-8,44	1 564,42
CAMI	CAMISOLA	37,000	1 903,73	-25,20	1 578,53
CAS	CASACO	130,000	6 469,69	-168,35	6 331,36
COLET	COLETE	2,000	47,15	0,00	47,15
JUMP	JUMPSUIT	25,000	1 334,86	-2,44	1 332,44
PON	PONCHO	4,000	253,94	-6,34	247,30
SAI	SAIA	35,000	1 418,93	-19,77	1 399,16
TOP	TOP	6,000	101,61	-13,33	114,94
VEST	VESTIDO	138,000	4 876,70	-162,39	4 688,31
Total Família:		877,000	26 061,94	-642,69	25 389,35
Família: 02 - ACESSÓRIOS					
N/D	N/D	62,000	499,75	0,00	499,75
10	CINTO	7,000	224,40	0,00	224,40
11	COLAR	13,000	281,32	0,00	281,32
BRI	BRINCO	11,000	190,25	0,00	190,25
CHA	CHAPEL	8,000	131,68	0,00	131,68
ECH	ECARPE	16,000	327,67	-11,71	315,96
MALA	MALA	7,000	256,10	0,00	256,10
PUL	PULSERA	1,000	27,64	0,00	27,64
Família: 03 - CALÇADO					
N/D	N/D	3,000	43,30	5,20	49,10
BOT	BOTAS	2,000	72,86	-14,47	86,93
SAPA	SAPATOS	33,000	1 586,39	-42,66	1 543,83

Appendix 22 – All Stores Sales Analysis for Collection “Happy Friday 03”

VINTAGE BAZAAR - SOC.UNIP., LDA					
Análise de Vendas					
Categoria: Família - 01 resumido a Família - 1.1					
Período: 20/10/2022 Até 02/11/2022; Moeda: EUR					
sem grelha: Tipos de Documentos: DEVCR,DEVOL,DEVSH,FACHT,FACV,FACR,FACT,FACTS,FTR,FTRSH,NCRE,NDEB,NCCR,NCRES,NDEBO,TAL,VIN,VDCRI, incluir Artigos Inativos, incluir Artigos ref.					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadoria					
Família: 01 - VESTUÁRIO					
N/D	N/D	38,000	1 836,35	-60,64	1 775,91
BLU	BLUSA	223,000	8 695,91	-365,60	8 331,31
CALC	CALÇA	12,000	961,30	0,00	961,30
CALÇA	CALÇA	171,000	8 099,36	-216,17	7 872,18
CAM	CAMISA	87,000	3 770,91	-236,20	3 534,71
CAMI	CAMISOLA	114,000	4 821,67	-131,16	4 690,51
CAS	CASACO	226,000	12 360,03	-270,96	12 109,07
COLET	COLETE	3,000	150,40	0,00	150,40
JUMP	JUMPSUIT	43,000	2 164,17	-136,25	2 025,32
PON	PONCHO	12,000	730,04	-6,34	723,70
SAI	SAIA	71,000	3 268,47	-140,61	3 147,86
TOP	TOP	14,000	528,41	-62,99	475,42
VEST	VESTIDO	217,000	9 501,71	-648,76	8 852,95
Total Família:		1 231,000	56 316,82	-2 267,83	54 061,54
Família: 02 - ACESSÓRIOS					
N/D	N/D	153,000	805,63	-57,14	748,49
10	CINTO	21,000	795,40	-14,96	770,44
11	COLAR	36,000	791,10	-30,49	760,61
BRI	BRINCO	23,000	376,44	0,00	376,44
CHA	CHAPEL	18,000	432,81	-6,83	425,98
ECH	ECARPE	36,000	880,50	-14,39	866,11
MALA	MALA	22,000	855,25	0,00	855,25
Família: 03 - CALÇADO					
N/D	N/D	8,000	416,24	-15,61	403,63
BOT	BOTAS	89,000	6 863,64	-165,80	6 707,84
SAPA	SAPATOS	38,000	1 124,38	-15,25	1 109,83

Appendix 23 – All Stores Sales Analysis for Collection “Filipa”

VINTAGE BAZAAR - SOC.UNIP., LDA					
Análise de Vendas					
Categoria: Família - 01 resumido a Família - 1.1					
Período: 03/11/2022 Até: 10/11/2022; Moeda: EUR					
sem grãfia; Tipos de Documentos:					
DEVCR.DEVOL.DEVSH.FACHT.FACV.FACR.FACT.FACTS.FTR.FTRSH.NCIRE.NDEB.NCCR.NCRES.NDEBO.TAL.VIDN.VDCRI.					
Incluir Artigos Inativos; Incluir Artigos ref.					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadorias					
Família: 01 - VESTUÁRIO					
N/D	N/D	11,000	391.86	-40.73	351.13
BLU	BLUSA	88,000	3.490.52	-154.84	3.335.68
CALC	CALÇÃO	3,000	131.70	0.00	131.70
CALÇA	CALÇA	50,000	2.111.26	-8.47	2.102.79
CAM	CAMISA	17,000	757.89	-18.71	739.18
CAMI	CAMISOLA	47,000	1.965.58	-84.24	1.901.34
CAS	CASACO	140,000	7.309.71	-295.88	7.013.83
JUMP	JUMPSUIT	16,000	864.53	-44.24	840.29
PON	PONCHO	7,000	359.35	0.00	359.35
SAI	SAIA	22,000	647.09	-26.11	617.88
TOP	TOP	8,000	204.09	-11.71	192.38
VEST	VESTIDO	134,000	8.141.73	-388.31	7.753.48
Total Família:			34.428.17	-1.016.94	33.392.23
Família: 02 - ACESSÓRIOS					
N/D	N/D	70,000	315.15	-22.40	289.75
IS	CINTO	4,000	112.20	-7.48	104.72
TI	COLAR	12,000	225.01	-3.09	221.92
BRI	BRINCO	5,000	85.37	0.00	85.37
CHA	CHAPÉU	4,000	84.54	-5.65	78.89
ECH	ECHARPE	20,000	408.96	-8.43	399.53
MAL	MALA	8,000	434.95	0.00	434.95
Família: 05 - CALÇADO					
N/D	N/D	7,000	383.71	0.00	383.71
BOT	BOTAS	36,000	2.496.00	-40.26	2.455.74
SAPA	SAPATOS	17,000	751.15	-27.32	723.87

Appendix 24 – All Stores Sales Analysis for Collection “Happy Friday 04”

VINTAGE BAZAAR - SOC.UNIP., LDA					
Análise de Vendas					
Categoria: Família - 01 resumido a Família - 1.1					
Período: 11/11/2022 Até: 28/11/2022; Moeda: EUR					
sem grãfia; Tipos de Documentos:					
DEVCR.DEVOL.DEVSH.FACHT.FACV.FACR.FACT.FACTS.FTR.FTRSH.NCIRE.NDEB.NCCR.NCRES.NDEBO.TAL.VIDN.VDCRI.					
Incluir Artigos Inativos; Incluir Artigos ref.					
Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadorias					
Família: 01 - VESTUÁRIO					
N/D	N/D	25,000	1.420.30	-44.47	1.375.83
BLU	BLUSA	144,000	8.519.61	-473.53	8.046.08
CALC	CALÇÃO	11,000	439.05	-149.26	289.74
CALÇA	CALÇA	118,000	5.216.66	-865.58	4.351.07
CAM	CAMISA	35,000	1.216.25	-271.89	944.36
CAMI	CAMISOLA	77,000	3.379.09	-66.61	3.312.42
CAS	CASACO	261,000	14.460.52	-744.19	13.716.42
COLET	COLETE	2,000	94.30	0.00	94.30
JUMP	JUMPSUIT	86,000	4.820.26	-1.470.58	3.449.70
KIM	KIMONO	1,000	76.42	0.00	76.42
PON	PONCHO	10,000	570.73	-209.26	361.47
SAI	SAIA	68,000	3.316.43	-421.22	2.895.11
TOP	TOP	5,000	208.11	0.00	208.11
VEST	VESTIDO	216,000	10.759.23	-1.791.09	8.968.14
Total Família:			52.090.96	-4.101.68	47.989.17
Família: 02 - ACESSÓRIOS					
N/D	N/D	199,000	344.68	-3.41	341.17
IS	CINTO	18,000	621.67	-3.74	617.93
TI	COLAR	42,000	948.64	-13.49	895.39
BRI	BRINCO	14,000	269.39	0.00	269.39
CHA	CHAPÉU	8,000	186.96	-12.88	174.08
ECH	ECHARPE	39,000	768.33	-12.19	756.14
MAL	MALA	13,000	689.43	-8.51	679.92
PUL	PULSERA	3,000	27.64	0.00	27.64
Família: 05 - CALÇADO					
N/D	N/D	14,000	611.35	-197.70	413.65
BOT	BOTAS	42,000	3.176.96	-84.74	3.152.21
SAPA	SAPATOS	21,000	879.48	-6.85	872.63

Appendix 25 – All Stores Sales Analysis for Collection “Luisa”

VINTAGE BAZAAR - SOC.UNIP., LDA					
Análise de Vendas					
Categoria, Família - 01 resumido a Família - 1.1					
Período: 29/11/2022 Até 04/01/2023; Moeda: EUR					
sem grêfas; Tipos de Documentos:					
DEVCR,DEVOL,DEVSH,FACHT,FACIV,FACR,FACT,FACTS,FTR,FTRSH,NCRE,NDEB,NCOR,NCRES,NDEBO,TAL,VIDIN,VDCRI,					
Incluir Artigos inativos; Incluir Artigos ref.					
Código	Descrição	Qtz.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadoria					
Família: 01 - VESTUÁRIO					
N/D	N/D	79,000	3 695,63	-284,00	3 391,63
BLU	BLUSA	392,000	16 408,99	-1 103,00	15 305,99
CALC	CALÇA	8,000	319,50	-79,50	140,48
CALÇA	CALÇA	271,000	11 824,58	-814,03	11 010,55
CAM	CAMISA	123,000	9 198,73	-838,41	8 359,32
CAMI	CAMISOLA	335,000	13 448,95	-264,32	13 184,63
CAS	CASACO	592,000	31 275,91	-1 329,83	29 946,08
COLET	COLETE	8,000	285,38	-30,98	254,40
JUMP	JUMPSUIT	37,000	4 941,01	-1 830,85	3 110,16
KIM	KIMONO	2,000	152,84	0,00	152,84
PON	PONCHO	28,000	1 452,96	-374,20	1 078,76
SAI	SAIA	304,000	12 950,05	-724,54	12 225,51
TOP	TOP	28,000	1 153,61	-23,42	1 130,19
VEST	VESTIDO	902,000	24 045,60	-2 349,12	21 696,48
Total Família:		3 787,000	127 855,64	-9 286,87	117 768,97
Família: 02 - ACESSÓRIOS					
N/D	N/D	711,000	1 872,84	-191,80	1 681,24
IG	CINTO	21,000	750,05	-11,22	738,73
II	COLAR	65,000	1 253,20	-33,35	1 219,85
BRI	BRINCO	60,000	840,23	-3,08	846,15
CHA	CHAPÉU	9,000	110,91	0,00	110,91
ECH	ECHARPE	115,000	2 151,37	-113,83	2 037,54
MALA	MALA	42,000	2 270,88	-79,27	2 191,61
PUL	PULSEIRA	4,000	100,66	-1,98	98,71
Família: 05 - CALÇADO					
N/D	N/D	75,000	5 434,63	-93,17	5 341,46
CALÇA	CALÇA	4,000	196,09	-20,81	175,28
CAMI	CAMISOLA	1,000	0,00	0,00	0,00
CAS	CASACO	0,000	-63,41	0,00	-63,41

Appendix 26 – All Stores Sales Analysis for Collection “Happy Friday 05”

VINTAGE BAZAAR - SOC.UNIP., LDA					
Análise de Vendas					
Categoria, Família - 01 resumido a Família - 1.1					
Período: 05/01/2023 Até 11/01/2023; Moeda: EUR					
sem grêfas; Tipos de Documentos:					
DEVCR,DEVOL,DEVSH,FACHT,FACIV,FACR,FACT,FACTS,FTR,FTRSH,NCRE,NDEB,NCOR,NCRES,NDEBO,TAL,VIDIN,VDCRI,					
Incluir Artigos inativos; Incluir Artigos ref.					
Código	Descrição	Qtz.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadoria					
Família: 01 - VESTUÁRIO					
N/D	N/D	54,000	817,88	-171,14	646,74
BLU	BLUSA	60,000	2 395,01	-147,95	2 247,06
CALÇA	CALÇA	35,000	1 479,08	-204,70	1 274,38
CAM	CAMISA	3,000	47,15	0,00	47,15
CAMI	CAMISOLA	35,000	1 477,97	-55,62	1 422,35
CAS	CASACO	59,000	3 924,24	-309,84	3 614,40
JUMP	JUMPSUIT	16,000	773,92	-331,65	442,27
PON	PONCHO	13,000	639,89	-101,48	538,40
SAI	SAIA	35,000	1 589,50	-81,30	1 508,20
TOP	TOP	8,000	219,49	-60,08	159,41
VEST	VESTIDO	40,000	1 693,23	-332,40	1 360,83
Total Família:		315,000	14 952,38	-1 798,48	12 763,90
Família: 02 - ACESSÓRIOS					
N/D	N/D	59,000	424,60	-72,44	352,16
IG	CINTO	7,000	361,80	-14,96	346,84
II	COLAR	11,000	212,17	-12,52	200,15
BRI	BRINCO	7,000	122,76	0,00	122,76
CHA	CHAPÉU	10,000	232,85	-18,74	214,11
ECH	ECHARPE	7,000	133,34	0,00	133,34
MALA	MALA	10,000	482,11	-30,81	451,30
PUL	PULSEIRA	1,000	31,71	0,00	31,71
Família: 05 - CALÇADO					
N/D	N/D	1,000	52,03	-20,81	31,22
BOT	BOTAS	3,000	257,71	0,00	257,71
SAPA	SAPATOS	3,000	86,29	-8,63	77,66

Appendix 27 – All Stores Sales Analysis for Collection “Rio”

VINTAGE BAZAAR - SOC.UNIP., LDA

Análise de Vendas

Categoria: Família - 01 resumo a Família - 1.1

Período: 12/01/2023 Até: 25/01/2023; Moeda: EUR

sem grilha; Tipos de Documentos:

DEVCR,DEVOL,DEVSH,FACHT,FACN,FACR,FACT,FACTS,FTR,FTRSH,NCRE,NDEB,NCCR,NCRS,NDEBD,TAL,VDIR,VOCRI,
Incluir Artigos Inativos; Incluir Artigos ref.

Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadoria					
Família: 01 - VESTUÁRIO					
N/D	N/D	10,000	863,74	-150,32	533,42
BLU	BLUSA	146,000	8 368,88	-379,52	5 989,36
CALÇA	CALÇA	99,000	4 380,00	-557,69	3 822,31
CAM	CAMISA	42,000	1 998,24	-89,30	1 908,94
CAMI	CAMISOLA	51,000	2 061,62	-203,81	1 857,81
CAS	CASACO	80,000	3 959,90	-457,89	3 502,01
COLET	COLETE	8,000	290,92	-33,01	262,91
JUMP	JUMPSUIT	24,000	1 326,72	-574,88	751,84
PON	PONCHO	18,000	1 011,40	-288,38	723,02
SAI	SAIA	35,000	1 586,65	-255,60	1 331,05
TOP	TOP	8,000	977,20	-18,98	958,22
VEST	VESTIDO	117,000	5 660,84	-1 078,36	4 582,48
Total Família:		636,998	29 993,21	-4 664,42	25 328,79
Família: 02 - ACESSÓRIOS					
N/D	N/D	104,000	671,76	-113,81	557,95
IO	CINTO	24,000	831,75	-14,95	816,79
TI	COLAR	27,000	562,35	-11,39	550,96
BR	BRINCO	40,000	831,87	-29,09	802,78
CHA	CHAPEU	8,000	151,19	-8,83	142,36
ECH	ECHEPE	21,000	309,14	0,00	309,14
MALA	MALA	9,000	815,40	0,00	815,40
PUL	PULSEIRA	1,000	31,71	0,00	31,71
Família: 03 - CALÇADO					
N/D	N/D	2,000	115,44	-20,81	94,63
BOT	BOTAS	8,000	488,87	-115,79	373,08
SAPA	SAPATOS	11,000	830,33	-175,48	654,85

Appendix 28 – All Stores Sales Analysis for Collection “Happy Friday 06”

VINTAGE BAZAAR - SOC.UNIP., LDA

Análise de Vendas

Categoria: Família - 01 resumo a Família - 1.1

Período: 25/01/2023 Até: 08/02/2023; Moeda: EUR

sem grilha; Tipos de Documentos:

DEVCR,DEVOL,DEVSH,FACHT,FACN,FACR,FACT,FACTS,FTR,FTRSH,NCRE,NDEB,NCCR,NCRS,NDEBD,TAL,VDIR,VOCRI,
Incluir Artigos Inativos; Incluir Artigos ref.

Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido
Categoria: 1 - Mercadoria					
Família: 01 - VESTUÁRIO					
N/D	N/D	11,000	475,63	-120,09	355,54
BLU	BLUSA	87,000	3 733,22	-306,01	3 427,21
CALC	CALÇÃO	2,000	87,80	-43,90	43,90
CALÇA	CALÇA	92,000	4 490,46	-408,40	4 082,06
CAM	CAMISA	30,000	1 222,88	-35,36	1 187,52
CAMI	CAMISOLA	47,000	2 057,24	-70,08	1 987,16
CAS	CASACO	85,000	3 246,17	-387,88	2 858,29
COLET	COLETE	2,000	94,31	-14,15	80,16
JUMP	JUMPSUIT	20,000	1 050,32	-187,94	862,38
PON	PONCHO	8,000	474,82	-177,58	297,24
SAI	SAIA	21,000	858,59	-84,06	774,53
TOP	TOP	4,000	169,09	0,00	169,09
VEST	VESTIDO	99,000	2 887,30	-358,33	2 528,97
Total Família:		448,998	20 606,89	-2 283,89	18 323,00
Família: 02 - ACESSÓRIOS					
N/D	N/D	78,000	262,48	-13,18	249,30
IO	CINTO	37,000	1 245,26	-84,77	1 160,49
TI	COLAR	29,000	674,02	-4,31	669,71
BR	BRINCO	27,000	546,30	-14,13	532,17
CHA	CHAPEU	18,000	341,40	-13,66	327,74
ECH	ECHEPE	13,000	242,29	-3,90	238,39
MALA	MALA	8,000	409,75	-14,83	394,92
PUL	PULSEIRA	8,000	94,31	0,00	94,31
Família: 03 - CALÇADO					
N/D	N/D	1,000	-4,87	10,89	16,02
BOT	BOTAS	3,000	257,73	-77,33	180,40
SAPA	SAPATOS	3,000	88,29	-20,49	67,80

Appendix 29 – All Stores Sales Analysis for Collection “Anna”

VINTAGE BAZAAR - SOC UNIP., LDA

Análise de Vendas

Categoria: Família - 01 resumido a Família - 1.1

Período: 09/02/2023 Até 26/02/2023 | Moeda: EUR

sem gráfico, Tipos de Documentos:

DEVCR,DEVOL,DEVSH,FACHT,FACV,FACR,FACT,FACTS,FTR,FTRSH,NICRE,NIDEB,NCCR,NCRES,NDEBD,TAL,VIDIN,VOCRI,
Incluir Artigos incluídos, Incluir Artigos ref.

Código	Descrição	Qtd.	Valor	Desconto	Valor Líquido	
Categoria: 1 - Mercadoria						
Família: 01 - VESTUÁRIO						
N/D	N/D	8,600	364,24	0,00	364,24	
BLU	BLUSA	108,000	1.961,48	-233,87	1.727,61	
CALÇA	CALÇA	149,000	6.950,28	-25,46	6.924,82	
CAM	CAMISA	58,000	2.686,24	-60,58	2.625,66	
CAMI	CAMISOLA	41,000	1.987,05	-47,15	1.940,50	
CAS	CASACO	110,000	5.185,08	-201,26	4.983,72	
COLET	COLETE	17,000	912,21	-18,10	894,11	
CORU	CONJUNTO	22,000	1.131,64	-7,80	1.123,84	
JUMP	JUMPEUIT	48,000	2.377,07	-62,52	2.314,55	
PON	PONCHO	8,000	188,80	-9,43	179,37	
SAI	SAGA	48,000	2.177,07	-94,83	2.082,44	
TOP	TOP	9,000	333,31	0,00	333,31	
VEST	VESTIDO	100,000	5.119,74	-177,81	4.941,93	
Total Família:			784,000	36.079,51	-822,83	36.156,68
Família: 02 - ACESSÓRIOS						
N/D	N/D	188,000	4.711,42	-241,27	4.470,15	
CO	CINTO	36,000	1.001,03	-15,13	1.045,90	
COL	COLAR	31,000	642,28	-18,13	624,15	
BRN	BRINCO	46,000	989,83	-12,20	977,43	
CHA	CHAPÉU	3,000	70,41	0,00	70,41	
ECH	ECHARPE	10,000	202,48	0,00	202,48	
MAI	MAIOLA	12,000	850,40	0,00	850,40	
PLA	PULSEIRA	7,000	105,28	-12,24	145,04	
Família: 03 - CALÇADO						
N/D	N/D	0,000	-47,15	0,00	-47,15	
BOT	BOTAS	14,000	1.006,50	-88,52	1.436,98	
SAPA	SAPATOS	2,000	68,28	-13,66	54,62	

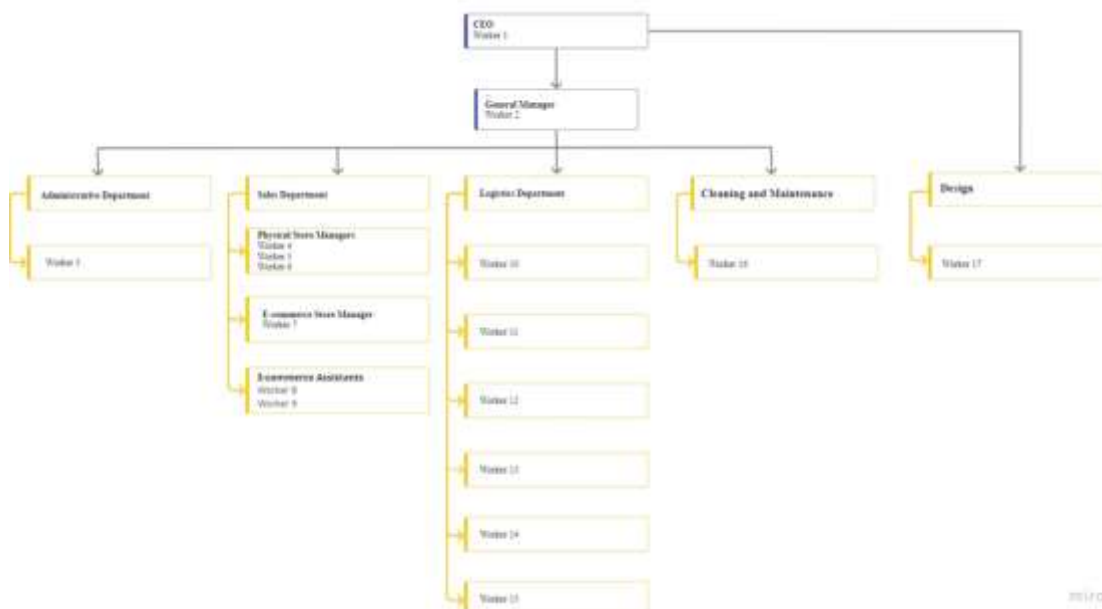
Appendix 30 – Data Gathered from ERP System per Collection per Item Category

Item Name	9 Months	ABC	Tica	Maria	Mafalda	Happy Friday 1	Carminho	Happy Friday 2	Rita	Happy Friday 3	Filipa	Happy Friday 4	Luisa	Happy Friday 5	Rio	Happy Friday 6	Anna
N/D Vest	21088,38	C	5322,39	1530,86	1011,16	1035,06	1486,68	843,11	1074,63	1775,91	351,13	1375,83	3381,68	646,74	533,42	355,54	364,24
Blusa	87144,52	C	12747,47	4749,07	4063,36	2735,1	4639,55	3017,62	4211,95	8331,31	3305,98	5546,08	15305,89	2247,06	5989,36	3427,21	6827,51
Calção	4318,15	C	2403,28	513,84	7,32	14,31	54,63	374,29	361,3	131,7	289,74	140,48	140,48	43,9			
Calça	70243,74	C	9799,17	3006,76	3877,6	2415,7	4396,83	2607,67	2395,87	7872,18	2102,79	4745,07	11010,55	1274,38	3832,31	4082,06	6824,8
Camisa	25901,3	C	1582,17	1751,21	567,6	1432,39	2134,5	1067,73	1564,42	3534,71	738,98	944,36	4858,32	47,15	1857,81	1187,29	2632,66
Camisola	36910,42	C	-47,15	442,9	359,67	851,34	2230,06	1529,35	1578,53	4690,51	1904,34	3318,42	13164,63	1422,35	1857,81	1967,16	1640,5
Casaco	115251,95	C	1074,9	5944,93	7098,64	4407,94	7416,46	6031,3	6331,36	12109,07	7073,83	13716,42	29946,08	2614,4	3502,21	2998,69	4985,72
Colete	3134,63	C		554,78	60,16	382,25	163,41	188,6	47,15	150,4		94,3	254,4		262,91	80,16	896,11
Conjunto	1123,84	C															1123,84
Jumpsuit	28828,34	C	2561,95	3751,7	2774,23	1575,03	2537,37	1188,54	1332,44	1025,92	840,29	3449,7	3410,16	442,24	751,84	862,38	2324,55
Kimono	229,26	C						95,94	247,3	723,7	359,35	361,47	1108,76	529,4	745,02	297,24	179,17
Poncho	4647,35	C															
Saia	43525,01	C	4091,16	3657,16	2910,37	1823,99	3117,99	1942,5	1399,16	3147,86	617,98	2895,11	12225,51	1507,2	1341,05	765,53	2082,44
Top	14446,6	C	7036,46	913,09	2464,22	375,1	203,07	303,47	114,94	475,42	192,38	208,11	1130,19	169,41	358,34	169,09	333,31
Vestido	119433,98	C	34074,22	9125,57	5420,06	3140,84	7722,18	3743,05	4686,31	8852,95	5773,48	1968,14	21699,48	1365,54	4811,58	2108,75	4941,83
N/D Accessories	18.433,41 €	C	5.375,42 €	1.438,07 €	553,22 €	581,46 €	919,86 €	654,70 €	499,75 €	748,49351,12	288,75 €	541,17 €	1.821,24 €	352,49 €	557,83 €	379,30 €	4.470,15 €
Cinto	7.736,11 €	C	1.305,15 €	287,98 €	142,12 €	115,94 €	87,16 €	11,22 €	224,40 €	770,44 €	104,72 €	618,23 €	758,73 €	246,84 €	816,79 €	1.200,49 €	1.045,90 €
Colar	10.656,45 €	C	3.339,84 €	644,87 €	452,50 €	457,23 €	284,91 €	203,27 €	281,32 €	760,61 €	231,92 €	835,35 €	1.219,85 €	200,15 €	550,76 €	569,71 €	624,16 €
Brinco	4.600,28 €	C	278,45 €	12,52 €	75,94 €	15,52 €	16,10 €		190,25 €	376,44 €	85,37 €	268,30 €	846,15 €	122,76 €	802,88 €	532,17 €	977,43 €
Chapéu	3.812,07 €	C	377,28 €	15,93 €	801,07 €	335,28 €	461,44 €	136,89 €	131,69 €	425,98 €	78,69 €	174,28 €	110,91 €	214,11 €	144,36 €	327,75 €	764,1 €
Echarpe	6.839,05 €	C		341,80 €	506,37 €	121,81 €	436,94 €	315,12 €	315,96 €	666,11 €	399,53 €	756,14 €	2.035,54 €	133,74 €	369,14 €	238,39 €	202,46 €
Lenço	64,24 €	C	48,79 €	15,45 €													
Mala	12.793,08 €	C	1.794,76 €	806,15 €	1.364,35 €	984,22 €	413,96 €	691,54 €	256,10 €	855,23 €	434,95 €	679,92 €	2.199,62 €	451,30 €	615,46 €	395,12 €	850,40 €
Parêo	3.785,31 €	C	3.184,35 €	550,88 €	25,04 €		25,04 €										
Pulseira	1.349,42 €	C	682,41 €	127,65 €	13,66 €		55,28 €		27,64 €			27,64 €	98,71 €	31,71 €	31,71 €	94,31 €	145,04 €
N/D Shoes	2.094,54 €	C			227,63 €	163,08 €	300,15 €	49,10 €	400,63 €	383,71 €	413,65 €	71,87 €	31,22 €	94,63 €	6,02 €	-	47,15 €
Botas	22.639,98 €	C			1.288,00 €	1.265,28 €	926,20 €	130,24 €	86,83 €	6.797,84 €	2.455,74 €	3.124,21 €	4.513,10 €	257,73 €	350,08 €	180,41 €	1.436,98 €
Sapatos	12.118,45 €	C			3.202,79 €	812,65 €	334,62 €	2.192,10 €	1.543,83 €	1.108,83 €	723,87 €	812,65 €	828,36 €	61,46 €	454,87 €	47,80 €	54,62 €
Sandálias	1.522,23 €	C	950,59 €	385,38 €	122,03 €	64,23 €	128,46 €										

Appendix 31 – Pivot Table with the Value Rankings for Each Item Category

Rank	Item Name	Sum of 9 Months	%Items	% Revenues	ABC
1	Vestido	119 433,98 €	3%	17%	A
2	Casaco	115 251,95 €	7%	34%	A
3	Blusa	87 144,52 €	10%	47%	B
4	Calça	70 243,74 €	14%	57%	B
5	Saia	43 525,01 €	17%	64%	B
6	Camisola	36 910,42 €	21%	69%	B
7	Jumpsuit	28 828,34 €	24%	73%	B
8	Camisa	25 901,30 €	28%	77%	B
9	Botas	22 639,98 €	31%	80%	C
10	N/D Vest	21 088,38 €	34%	83%	C
11	N/D Aecessories	18 433,41 €	38%	86%	C
12	Top	14 446,60 €	41%	88%	C
13	Mala	12 793,08 €	45%	90%	C
14	Sapatos	12 178,45 €	48%	92%	C
15	Colar	10 656,45 €	52%	93%	C
16	Cinto	7 736,11 €	55%	95%	C
17	Écharpe	6 839,05 €	59%	96%	C
18	Poncho	4 647,35 €	62%	96%	C
19	Brinco	4 600,28 €	66%	97%	C
20	Calção	4 318,15 €	69%	98%	C
21	Chapéu	3 812,07 €	72%	98%	C
22	Paréo	3 785,31 €	76%	99%	C
23	Colete	3 134,63 €	79%	99%	C
24	N/D Shoes	2 094,54 €	83%	99%	C
25	Sandálias	1 522,23 €	86%	100%	C
26	Pulseira	1 349,42 €	90%	100%	C
27	Conjunto	1 123,84 €	93%	100%	C
28	Kimono	229,26 €	97%	100%	C
29	Lenço	64,24 €	100%	100%	C

Appendix 32 – Vintage Bazaar Organizational Chart



Appendix 33 – Average Cost Price by Flash Item Category

Flash Items	Dresses	Jumpsuits	Shirts
Average Cost Price	7€	7€	7€

Appendix 34 – Average Cost Price by Exclusive Item Category

Exclusive Items	Dresses	Jumpsuits	Blouses	Tops	Knits	Jackets
Average Cost Price	15€	9€	16€	7€	16€	16€

Exclusive Items	Jeans	Skirts	Boots	Earrings	Belts	Accessories	Bags
Average Cost Price	14€	10€	53€	3€	10€	7€	49€