A Work Project, presented as part of the requirements for the Award of a Master's degree in Finance from the Nova School of Business and Economics.

MANAGEMENT CONTROL FIELD LAB – DEVELOPMENT OF A MANAGEMENT CONTROL SYSTEM FOR COMPORTA PERFUMES

Implementation of an Effective Costing System for Comporta Perfumes

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09/01/2023

Abstract

The present Work Project outlines the development process of a robust and comprehensive Management Control System for the Portuguese niche perfumery company COMPORTA PERFUMES. The created tailored system is composed of five Microsoft Excel models and, by leveraging the automation of complex processes, aims to assist management to understand the causes of its current underperformance while supporting future operational, strategic, and financial decision-making. The first individual component of this Work Project consisted in the development of an appropriate costing system to correctly trace costs to COMPORTA's products, providing an insightful tool to analyse profitability.

Keywords: Management Control System, Costing System, Weighted Average Cost Method, Break-Even Point, Consulting Project, Contribution Margin

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

Table of Contents

List of Abbreviations

BEP Break-Even Point

COGS Cost of Goods Sold

DM Direct Material

KPI Key Performance Indicator

PoS Point of Sale

SME Small and Medium-sized Enterprises

WP Work Project

I. Group Part

1. Introduction

The first cost accounting systems originated at the beginning of the 19th century, when big enterprises such as railroads and textile factories started to demand further information for internal planning and control. This necessity to coordinate operations – more specifically the numerous processes involved in the enforcement of companies' basic activity – culminated in the creation of internal administrative procedures that can be considered the ancestors of today's cost accounting and management control procedures (Kaplan 1984). Such need, which firstly arose for companies that mass-produced standard products at high direct labour costs, was significantly intensified by the industrial revolution. By the beginning of the 20th century, large firms employed extensive cost accounting systems that combined financial and non-financial data but without imposing performance or cost targets "to provide information on the efficiency and effectiveness of their decentralized operations" (Kaplan and Atkinson 1998, 7; Johnson 1992). Nevertheless, during World War II (1939-1945), financial accounting data replaced traditional cost accounting systems, as the governments sought to trade exclusively with companies whose production costs were near to actual, rather than standard costs (Gliaubicas 2012). As a result, the role of management accounting was drastically diminished to solely setting expense targets.

However, according to Kaplan (1984), the above stated cost accounting and management control procedures, which use profits as the primary motivator and evaluator of short-term success, are no longer suitable to base organizations' planning and control decisions. As such, it is necessary to adapt traditional cost accounting and Management Control Systems to the modern nature of organizations, the current competitive environment, and to its respective challenges, to ensure that the new requirements for planning and control are met.

Management control can be defined as “the process by which managers obtain the assurance that resources will be obtained and used effectively and efficiently in order to achieve the objectives of the organization” (Anthony 1965, 42). This is especially important for small and medium-sized enterprises (SME’s or PME’s in Portuguese, as for *micros, pequenas e médias empresas*), which are defined as legally/monetarily autonomous enterprises whose responsibilities are frequently delegated to the sole owner of the capital (Chegri, Rigalma, and Torra 2021) and that (in the case of micro companies) employ less than 10 people and have an annual business volume/total annual Balance Sheet not exceeding EUR 2 million (Instituto Nacional de Estatística 2022). As it will be further explained in detail, there are some SME’s business model specificities – size, the role of the leader, and its simple structure – that lead to commonly underdeveloped information systems and flaws in the decision-making processes. This, in turn, explains the increased relevance of appropriate Management Control Systems for these companies (Chegri, Rigalma, and Torra 2021).

Due to their small size in terms of both labour force and activity, micro companies do not usually have enough technical/financial resources to implement the appropriate Management Control procedures and analytical Accounting Systems. Secondly, the SME’s owners, who typically play both the roles of leaders and managers, strongly constrain Management Control Systems by using their ambitions and background to personify the company following their idiosyncrasies and beliefs and thus basing management decisions on personal judgments and intuitions instead of forecasting. Finally, SMEs are characterized by its simple centralized structure, as task specialisation within these firms is low, processes are barely formalized, and most decisions are centralized in the owner-manager. These three variables culminate in the SME’s typically underdeveloped information systems: simple, standard, and poorly organized internal information systems and rudimentary external information systems, with the exchange of information happening mostly informally through direct contact between the company’s

responsible and customers/suppliers/bankers. As such, SME's small size and basic structure promote swift and precipitated decision-making, by frequently leading owner-managers to make the mistake of immediately taking care of situations without any previous planning and structured thinking. As the centre of all decision-making processes, the owner-managers of micro enterprises tend to prioritize solely operational tasks, preventing a medium-/long-term strategic approach and replacing it with a tunnel vision only focused on the short-term (Chegri, Rigalma, and Torra 2021). Summing up, besides the supply and demand characteristics of the external competitive environment, SME's business model specificities highly limit Management Control Systems in these companies by restricting its forecasts to the short-term and thus preventing them from setting appropriate strategic objectives.

The present Work Project (WP) details a four-month consulting project in management accounting for the for-profit micro company COMPORTA PERFUMES, founded in 2017 by the lawyer Pedro Simões Dias, to pursue his passion for sophisticated perfumery by creating the first (and so far, only) Portuguese niche perfume brand. A further detailed external analysis of the Luxury and Niche Fragrances markets and a comprehensive internal analysis of COMPORTA PERFUMES will be presented in the following sections.

2. External Analysis

COMPORTA PERFUMES, as a niche perfume brand, operates in the complex and segmented Luxury Market. The Global Market of Luxury comprises three large industries, the most relevant being, in terms of sales, the Personal Luxury Goods Industry. Within this specific industry, one can find the Beauty & Personal Care Segment, where high-quality luxury beauty products are marketed. In turn, the Beauty & Personal Care Segment includes four distinct sub-segments: Personal Care, Skin Care, Cosmetics and Fragrances sub-segments. This last sub-segment is where the exclusive Niche Fragrances Business, and consequently COMPORTA

PERFUMES, is included. A general overview of the broad Luxury Market and an analysis of the Niche Fragrances Business will be presented in the following sub-sections, to provide a better understanding of the environment in which COMPORTA operates, as well as the current and future challenges imposed by the expected market trends.

Luxury Market & Niche Fragrances Business

Over the past few decades, the concept of luxury has gained prominence, and more businesses strive to market themselves as luxury brands. As a result, defining and interpreting the term "luxury" has become increasingly difficult. Luxuries are high-priced and premium quality objects of desire associated with uniqueness, prestige, excellence and physical or sensory enjoyment (Berry 1994; Brun and Castelli 2013). Through their representation of a basic good's qualitative refinement, luxury items inspire exclusivity and indulgence.

The Global Luxury Market has been steadily enlarging since the early 1990s (Donzé, Pouillard, and Roberts 2022). As a consequence of the unprecedented Covid-19 pandemic and of the resulting change in consumer behaviour, the Luxury Market, which was valued at EUR 1.26 trillion in 2019, fell drastically to EUR 1 trillion in 2020, reverting to its 2015 level. In 2021, the Luxury Market was estimated at EUR 1.14 trillion (D'Arpizio et al. 2021). Even though it is still 10% lower than its 2019 size, this figure indicates that the market is recovering at a fast pace (14%). Finally, between 2022 and 2027, this market is expected to grow - annually - at a compound annual growth rate of 5,40% (Statista 2022).

As previously mentioned, the Niche Fragrances Business is part of the Luxury Market and has been gaining progressive relevance within the Market. More creative and elegant, niche perfumes tend to be more expensive than conventional fragrances and have distinguishing features that make them high-quality and high-value products, such as an exclusive scent or a high concentration of pure components. Additionally, niche fragrances are rarely advertised

through traditional promotional campaigns, as consumers are expected to be interested and informed about the experience of purchasing and owning a niche perfume and go out of their way to find it. Unlike the other fragrances, niche perfumes tend to follow selective distribution processes and, for that reason, cannot usually be found in normal department stores.

Niche perfumery businesses emerged after 1970, when commercial perfumeries started launching fragrances at a faster pace, resulting in market saturation. These "commercial" scents were offered selectively at large perfume chains and were promoted through expensive marketing campaigns, frequently featuring well-known celebrities. Eventually, perfumes became a massive business in which the brand or the message represented by the advertising campaign turned out to be more important to the purchasing decision than the quality and inventiveness of the fragrance itself. As a response to the threat posed by these commercial perfumeries, small independent perfume houses introduced the concept of "niche perfumes", to save their businesses from the fierce competition. According to them, there was a need to return to the real perfume essence: handcrafted, one-of-a-kind creations composed of noble materials and unique scents in limited batches for the true perfume connoisseurs.

These exclusive niche perfumes have grown in popularity in recent years and have triggered a real Luxury Market revolution. However, the success achieved by these small independent perfume houses did not go unnoticed by the large commercial brands. In an effort not to be left behind in this constantly changing environment, large key players acquired some of the most successful niche perfume brands to also have access to this niche of sophisticated consumers.

Forecasts predict that the global Luxury Niche Perfume business should reach EUR 3.28 billion[1] by 2030 and that its revenues will increase at a 4.5% compound annual growth rate between 2022 and 2030 (Industry Growth Insights 2021). Moreover, changes in consumer

[1] USD 3.2 billion converted to EUR at the Sep 30th, 2022's EUR/USD exchange rate (EUR 1 = USD 0,9748) (European Central Bank 2022)

behaviour and the anticipated considerable increase in disposable income will highlight emerging economies such as China and India as high-growth potential regions for niche perfumes.

According to COMPORTA PERFUMES' founder, the high exclusivity, high pricing, and low customer loyalty that characterize niche fragrances make the in-person experience of feeling and smelling these products a crucial factor for the purchasing decision. For this reason, during the Covid-19 pandemic, the Niche Perfumery Business witnessed a dramatic decrease in demand (and sales). Consequently, contrary to what has been happening with more commercial perfumes, for niche perfume brands, the online channel was not a relevant advantage in 2020 and it is also not expected to represent the future of these businesses' retail landscape.

The general increase in disposable incomes and the Luxury Fragrances sub-segment's saturation are the two main growth drivers of the Niche Perfumes business. The increase in the offered brands and especially the boom of the flanker's phenomenon[2] have made the task of distinguishing between "commercial" (and even luxury) scents very difficult for consumers, which has been making people increasingly less brand loyal. However, this has ended up favouring niche perfume brands, which have gained popularity by being able to offer unique and customized fragrances. Nevertheless, there is still a considerable general lack of consumer awareness when it comes to this smaller business branch.

Niche perfume brands' success, in the future, will mostly depend on their ability to remain loyal to their original focus and not give up their unique selling proposition at the expense of blindly trying to keep up with other big key players. For that, distinguishing factors such as the choice of quality ingredients, small-scale production, and selective distribution techniques

[2] A flanker is a newly developed perfume that shares some characteristics with an existing scent (e.g., name, packaging, notes…)

must not be left behind. Furthermore, customers' rising unwillingness to commit to a single fragrance poses another probable challenge for Niche Perfumes in the future. Nowadays, this market's competitive landscape is essentially dominated by big names such as Frederic Malle, Memo, Diptyque, Byredo, Floris, Acqua di Parma, Amouage, and L'Artisan Parfumeur. However, the remaining percentage of market share is fragmented into countless to smaller and less well-known brands, such as COMPORTA, that have low impact in the overall niche perfumery business and fight to survive the fierce competition posed by the market's key players. The positioning Graph 1, which can be found in Appendix 1, maps the competitive position of some relevant niche perfume brands, in comparison with COMPORTA.

3. Internal Analysis

History, People & Brand Concept

Graduated in law, Pedro Simões Dias is, to this day, a lawyer specialized in Internet law and copyrights. Although his professional career was initiated far from the perfumery world, Pedro's enthusiasm for perfumery was born many years ago when he first began collecting fragrances and studying perfumery. To share his passion and expertise with others, Pedro created a blog where he posted niche perfume reviews and gave masterclasses about the art of developing these exclusive fragrances. His enthusiastic and unexampled way of navigating the perfumery world places him as a spearhead in the search and creation of original and distinctive aromas, through the innovative and unconventional combination of ingredients.

During the XIX century and almost until 1940, there were countless small perfume brands in Portugal. However, they all ended up fading away eventually and, since then, no Portuguese niche perfumery line could be found in the country. In 2017, Pedro Simões Dias established his own niche perfume brand, COMPORTA PERFUMES, taking advantage of this gap in the Portuguese market. Inspired by Comporta, a "boho chic" village located on the northern

Portuguese Alentejo coast, Pedro joined forces with four perfumers – Luca Maffei, Béatrice Aguilar, Daniel Josier and Stéphanie Bakouche – and created a line of unique niche perfumes that intended to recreate memories, olfactive moments, and stories around this inspiring location. Today, COMPORTA PERFUMES' product portfolio comprises three perfume lines – Original, Millésime, and Master & Apprentice – that include ten exclusive fragrances, as well as an additional home fragrances line – Home Stories Collection – that is composed of four pairs of Room Sprays and Scented Candles and a porcelain candleholder (an overview of the company's current product portfolio can be found in Appendix 2). All these unique and durable fragrances (specially crafted by renowned perfumers) are inspired by the experiences and memories from Comporta – one of Europe's most exclusive destinations and well-kept secrets.

Perfumes, Home Fragrances (Room Sprays), Scented Candles, and the Porcelain Candleholder are the four product categories which COMPORTA PERFUMES markets. To encourage informed in-person purchases, the company also offers testers of its entire product portfolio (apart from the "Al-Qasr" porcelain piece) to stores, which are identical to the sold products, but without packaging. Lastly, to provide the possibility for consumers to try COMPORTA's niche perfumes without having to commit to paying the full price for a regular 100 ml bottle, COMPORTA also has samples of its perfumes available, which contain the same fragrances as the full-size versions, but in a 2 ml bottle. Under normal circumstances, testers and samples are not commercialized by the company but rather offered as part of the company's marketing strategy to engage with customers and enhance brand awareness.

Cost Structure

In general, the direct materials (DMs) involved in the manufacturing of COMPORTA's products can be sub-divided into two classes: essences and components. Even so, there is a particular combination of DMs specific to each of the company's various product categories.

A comprehensive list of all DMs (both essences and components) necessary to produce each of COMPORTA PERFUMES' products can be found in Appendix 3.

Firstly, each Perfume, Scented Candle, and Room Spray has its own distinctive essence. These essences are developed by renowned perfumers within the niche perfumery market and correspond to 100%-natural-ingredients essential oils, which are then mixed with other elements (water and alcohol for perfumes, glycerine for candles, etc.) to give rise to the final products. Moreover, "components" is the designation that the present WP assigned to the set of materials required for the assembly of COMPORTA's products other than the content itself (bottles, pumps, collars, etc.). In this regard, each of the four previously mentioned product categories requires a specific combination of components for its production.

The next step in the production process is the Manipulation & Fabrication, which corresponds to the products' actual manufacturing and comprises the process of mixing the essences with the remaining ingredients to create the actual content, filling the products' containers with the respective liquid, and assembling the components into finished goods. Contrary to what happens with the products' DMs, whose purchase is the direct responsibility of the company itself, COMPORTA PERFUMES outsources the actual manufacturing of its products. In other words, the enterprise hires other companies to ensure the production of the products it sells under COMPORTA PERFUMES brand. All perfumes are manufactured by the Spanish perfume company BACHS, with the exception of "Olhar a Trancoso" which is produced in France by the manipulation company Stephid. Room Sprays and Scented Candles are all produced in Portugal by the candle manufacturer company Manuela, and "Al-Qasr" (porcelain candleholder), as previously mentioned, is fabricated by Vista Alegre.

Usually, COMPORTA resorts to the transport service company TORRESTIR to transport the DM (previously purchased) from the warehouse to the respective manipulation/fabrication

companies. After a few months, when manufacturing companies have the products finished and fully assembled (with all integrated components), COMPORTA PERFUMES resorts once again to TORRESTIR's services to transport the finished goods to the warehouse.

Moreover, besides outsourcing its entire production, the micro enterprise also hires a third-party warehousing and distribution company – Go Logistic – that provides all required logistic services, including distribution.

Revenue Streams

Being a niche premium brand, it is only expected that COMPORTA PERFUMES prices its products at a premium. Additionally, the most significant portion of COMPORTA's revenues comes from selling its products to different Points of Sales (PoS), which then either sell COMPORTA PERFUMES' products directly to the final consumers (Retails and Agents) or distribute the products they purchase by the PoSs that will have COMPORTA's products available for final buyers (Distributors). As such, generally, COMPORTA's direct clients are the Retailers, Distributors or Agents, rather than the actual niche perfume consumers. In this context, COMPORTA PERFUMES carefully selects the PoSs it wants to negotiate with, always considering the exclusivity that must be inherent to niche perfume brands. In practice, this translates into having a few key selling channels that have a remarkable position within the niche industry by targeting a specific and upscale segment of the market.

Regarding COMPORTA's pricing strategy, the company's product revenue never corresponds to the final selling price times the quantity sold. Although the enterprise sets the desired selling price at which it intends its products to be sold to final buyers, the price at which COMPORTA sells its products directly to PoSs does not correspond to that but rather to a "weighted" price. In practice, each Retail/Distributor has, as part of its contract with COMPORTA, a given coefficient associated, which corresponds to the value by which the price of each product is

divided. The results of these calculations are the prices that a Retail/Distributor pays for each COMPORTA's product. As for Agents, the selling price is weighted with the respective coefficient and then multiplied by a previously agreed-upon commission percentage.

When a particular PoS is close to running out of stock of COMPORTA PERFUMES' products, it notifies the company, which promptly sends an order form for the PoS to fill out, specifying which products it wants to purchase. Afterwards, COMPORTA PERFUMES analyses the order form and based on the order volume and client's prestige, defines what is the reasonable percentage of re-investment in that specific PoS. This percentage ultimately consists of the cost of the items the company decides to offer to that PoS (including testers, samples and other selling items such as shopping bags, product displays, brochures, etc. referred to by the organization as "miscellaneous" items) over the total sales revenue amount of the specific order. This measure is labelled by the company as "*PoS Re-Invest %*".

With almost negligible sales revenues, COMPORTA also has an online sales channel in which its products are sold directly to the final consumers.

4. Problem Statement

In June 2022, COMPORTA PERFUMES' management team contacted the group of students responsible for the present WP and requested accounting and auditing assistance with one fundamental problem: for the past years, the company has been registering negative results and has been requiring financial support. It is extremely challenging for niche perfumery businesses to thrive only through its online channel, acknowledging that consumers are looking for exclusive experiences, unique emotions, and sublime fragrances when acquiring such products, and that these are hardly transmitted through website purchases. As a consequence, COMPORTA PERFUMES' financial situation was aggravated by the Covid-19 outbreak.

As the company currently does not generate enough revenue to cover its expenses, it was strictly necessary to develop an insightful Management Control System to control performance and support the management team's informed operational and financial decisions. The lack of appropriate Accounting Systems currently prevents COMPORTA's management team from:

1. avoiding unforeseen cash flow insufficiency,
2. effectively managing production and financing needs,
3. understanding the sources of its profitability issues, and
4. having a clear understanding of how much they must sell or can afford to spend to achieve the short and long-term goals previously established for each respective period.

The absence of automated processes, which appeared to be a common factor among all (of the few) Management Control Systems employed by the organization, was one of the first causes that this group of students recognized for the inappropriateness of the company's currently implemented poor Accounting System. In most of them, all data was hardcoded and had to be manually recorded, making these management control models highly prone to Human error and consequently risking their overall accuracy. Additionally, it was noted that the company lacked a proper automated data collection process. There was not a set of documents that conjointly gathered relevant information regarding day-to-day operations, such as the updated list of PoSs, the record of actual sales, historical data on DMs' costs, among others. Concerning sales, the order forms (filled by each PoS) and the corresponding invoices were the only registries kept from COMPORTA PERFUMES' sales. The fact that the sales made for each PoS were not registered in a single control document - that allowed the comparison of total unit sales by product and per PoS - made it impossible for COMPORTA to assess both products' success and gains from selling its products to each client. Regarding DMs' costs, historical data

was separately kept in several different past invoices and business emails directly exchanged with suppliers, which difficulted the analysis of cost trends.

Before the start of this WP, COMPORTA PERFUMES had available three different Excel files to analyse its performance. The first Workbook consisted in an attempt to calculate COMPORTA's products' profitability margins based on standard costs and competitors' prices for pricing decisions purposes. By aligning a Cost-Plus Pricing strategy with a Competitive Pricing perspective, COMPORTA PERFUMES was probably looking for a simple method to reimburse its costs and ensure profits without losing track of the prices that other niche perfume brands on the market offered for similar products. However, this Excel Workbook presented three main limitations that made the model unsuitable for decision-making purposes: 1) not following a logical line of thought, 2) not including a costing method that correctly allocates and traces costs to different cost objects (products), and 3) not considering a temporal dimension. Regarding this last limitation, the way this model was constructed implied that the information entered served both as a momentary database and a managerial tool, preventing the storage of historical data. Moreover, the way that this Excel model was constructed implied hardcoding budgeted costs-related inputs, which, in practice, meant that COMPORTA's management team could never reassess its pricing strategy without having to overwrite the previous assumptions with the new budgeted expectations.

The second Excel Workbook provided was a Cash Flow Registry model, which COMPORTA PERFUMES used to register actual cash inflows and outflows. Although this model included a time dimension and separated inputs from the cash flow analysis itself, it did not include a planning and budget dimension that would allow COMPORTA to compare those actual cash movements with the company's budgeted expectations. The fact that the model did not consider the predictability of the actual cash flows registered made it an unsuitable tool for COMPORTA's cash flow management.

Finally, the third Excel file consisted of a Business Plan that delineated the company's operational and financial objectives until 2027. However, besides using too broad general assumptions as a baseline, this model presented some flaws in the way that the plan to achieve those long-term goals was defined. The fact that the operations were being budgeted by line instead of by product means that this plan did not consider the already existing products' actual individual contribution margins for the company's long-term objectives formulation.

Nevertheless, none of these accounting tools were specifically used to plan the company's near-future operations ahead. Since some suppliers take several months to deliver the DM needed to fulfil COMPORTA's outsourced production, the company must plan its production processes several months in advance, considering the different delivery times of DMs' suppliers. However, the absence of a structured planning and budgeting process and the consequent inability to accurately predict future sales does not currently allow COMPORTA PERFUMES to plan its production as far in advance as needed. Presently, the company responds to day-to-day developments in sales and marketing instead of constructing a sales plan based on accurate sales forecasting and coordinating production decisions accordingly. This is a strategic planning problem: without a reliable sales forecast, the company cannot know which level of sales/expenses to expect every month and thus is incapable of defining the correct set of strategic/operational goals to work towards.

Furthermore, the lack of a ruled coordination between sales expectations, stock management, and production decisions results in serious profitability and efficiency concerns, as the company only purchases most of the necessary components after the decision to produce, which delays the entire production process.

Finally, it was also acknowledged that COMPORTA PERFUMES' management team runs its operations without a clear quantitative notion of its products' real profitability and of the

company's specific relationship between production costs, the volume of production, sales volume, and profits. In practice, this means the company is making partially uninformed decisions regarding its pricing strategy and target profit objectives.

5. Methodology

After learning about the financial and managerial problems that COMPORTA PERFUMES was experiencing, it became evident that the team would need to design a user-friendly, automated Management Control System that could, simultaneously, display vital information about how the business was operating on a daily basis, preserve data, and assist on determining the root cause of cashflow issues. As such, the group of students decided to use Microsoft Excel to build the necessary planning and control system, bearing in mind COMPORTA PERFUMES' management team's pre-existing familiarity with the software and keeping in mind that Excel enables users to analyse data effortlessly and visually through graphs and dynamic charts. Besides, Excel allows the storage of large quantities of data in a single Workbook without compromising its performance. Finally, the software possesses a variety of automation tools, which have the power to improve the navigation experience of its users.

During the project's development, to align the scope of the present WP with COMPORTA PERFUMES' specific organizational goals and challenges, several meetings (listed and detailed in Appendix 4) were held with COMPORTA's team and a series of emails[3] were exchanged between both interested parties. The main purpose of these meetings was to clear questions/address requests from both sides, ensure that the system under development was in line with the company's expectations, and discuss key points for the company's future strategy.

[3] Throughout the present consulting project, an extensive process of emails' exchange was held between the students and COMPORTA PERFUMES' management team. For reasons of time management and schedule incompatibilities, these emails had attached several documents with detailed questions regarding both the company's business model and production processes, to which the company also replied in writing.

Throughout these meetings, it was acknowledged that the significantly broad range of product categories that COMPORTA PERFUMES markets implies a significant degree of supply chain complexity. Essence suppliers are different for most products, the components differ for each product category, and COMPORTA still relies on four different manipulation/fabrication firms to outsource the manufacturing of all its products. In light of this, the first stage in the development of the Management Control System was the construction of individual process flows for each of the 19 products the company sold to date (each product category's process flow is schematized in Appendix 5). This process involved the collection and analysis of past invoices from COMPORTA PERFUMES' suppliers and was an essential step to comprehend not only COMPORTA's cost structure but also the various resources and chaining of sequential tasks involved in the production process of each COMPORTA's product.

Only after developing the process flows, did the group of students acknowledge, in its entirety, the level of complexity in COMPORTA's operations and realized that, to effectively address all the company's current problems, compressing all relevant data in a single model would be overwhelming for the company's management team and would jeopardize both the practicality of the model and the easy access to data. As such, instead of creating a single Excel model, five Excel models were developed, each one with its own utility for the company's decision-making: a Planning Budget model (including Operating Budgets and Profitability & Break-Even Analysis) supported by a Sales Forecast model, an Operating Forecast model supported by an Actual Sales Registry model, and lastly a Performance Measurement & Control model.

The Operating Budgets and the Profitability & Break-Even Analysis comprise the Planning Budget model and were included in the first Microsoft Excel Workbook (Planning_ BUDGET_Blank) to allow COMPORTA PERFUMES' management team to analyse each product's profitability ratios and adapt its operating decisions for the year under budget accordingly. This model aims to serve as a tool for planning not only production but all relevant

operational and administrative decisions, laying out the plan for what COMPORTA wants to achieve in each period. As such, once the Budgets for a specific period are approved and closed (before the budgeted year arrives), they are not supposed to be modified or edited in any way.

The Sales Forecast model is the base of the Planning Budget model and was included in a different Workbook (Supporting_SALES_FORECAST_Blank) for several distinct reasons. The first and most important aspect was the increased relevance that the present group of students attributed to this budgeting process specific step: reliable operating budgets must lay on accurate sales forecasting and thus it is imperative that COMPORTA starts each budgeting process by devoting the utmost attention and care to this step. The second reason was the intention to create a sales-specific database that would work as the company's new sales information system by helping the firm with future sales processes. Finally, the sake of both Excel files' functionality was the last reason to separate the Sales Forecast model from the remaining budgets: as the first one involved a slightly different structure and a considerable number of auxiliary calculations, including it in the main Operating Budgets model would jeopardize the Excel file's performance by making it too heavy and slow.

However, there is a strong possibility that, as the period under budget approaches, the assumptions used to create these budgets are eventually rendered as obsolete. This means that the market conditions might have changed so drastically that the targets set in those budgets can no longer be considered attainable. The fact that COMPORTA relies on different DMs' suppliers that usually take several months to respond to its orders forces the company to plan its production in advance, enhancing the risk of future prospects/decisions becoming invalid. Having this risk in mind, a set of Operating Forecasts model was "created" in a different Excel Workbook (Planning_FORECAST_Blank) to provide COMPORTA PERFUMES with an accounting tool in which the company can state its actual results, indicating where

COMPORTA is actually going. This Operating Forecasts Excel file is generated by creating a copy of the approved and closed Operating Budgets Excel Workbook.

Moreover, an Actual Sales Registry model was designed as a management tool to assess COMPORTA's products' monthly performance. In this model (SALES_REGISTRY_Blank), the company will record, for each PoS, the units sold of each product and the number of items (testers, samples, and miscellaneous) offered in each order. The main purpose of this model is to gather all actual sales related data (that used to be dispersed through the different individual order forms) into a single document where COMPORTA can effortlessly access past orders from each specific PoS, evaluate products' performance, and track each period's global "*PoS Re-Invest*" percentages [4]. For functionality reasons, this Workbook was also separated from the other Excel files. Since it compiles a multitude of data entries and a level of detail not required for the other models, its complexity could affect the performance of the remaining Workbooks.

Finally, a Performance Measurement & Control model was built to enable COMPORTA PERFUMES to compare budgeted expectations with actual results and measure business performance. Subsequently, the Control model (Performance_Measurement_&Control_ Blank) extracts information from the Budget, the Forecast, and the Sales Registry models (through excel linkages) as well as information from the company's Trial Balances. Because this model retrieves data from a multitude of documents, the team of students concluded that it would be more convenient for the company to have this Excel file separately saved. Insights from this model will be the base for COMPORTA's future decision-making, as it allows the company to identify both failures and areas of improvement.

[4] The present WP refers to the "*global PoS Re-Invest percentages"* as the company's total percentage of *PoS Re-Invest* in each period, which results from the combination of all the company's decisions regarding individual *PoS Re-Invest percentages* for each PoS.

Models' Periodicity & Dynamics between Models

After deciding which models would be developed and their specific purpose, the consulting team had to decide on the periodicity of the models. When assessing this, it was acknowledged that the best option was to develop an annual budget model where the company can have data stored for a twelve-month horizon (the Planning Budget Excel corresponds to one year and has data entries for all months). For consistency purposes and considering that the remaining models are at some level linked to the Planning Budget model, it was concluded that the period of all the remaining models would be one year as well. There were three main reasons for this decision. First, since COMPORTA's business model implies the extremely anticipated planning of production, while budgeting, various assumptions on forward values must be made with little knowledge of future circumstances. Consequently, the model's accuracy could be called into doubt if a continuous budget where one year's predictions were intrinsically linked to the previous year's expectations was implemented at COMPORTA. Secondly, starting from scratch to analyse needs and costs at the beginning of each budgeting period should optimize COMPORTA's use and allocation of resources. Finally, having all models corresponding to a single year preserves the performance of each Excel model (having a continuous model would imply the storage of more data, which could jeopardize the Excel Workbooks' functionality).

Furthermore, to encourage storage and prevent information losses, a blank version of these models will be delivered to the company. This way, the company will always have a blank version of each of the five models saved. Whenever a new budgeting year starts, COMPORTA is required to make a copy of the blank version of all models and alter the name of each one by adding the year. This way, the company is compelled to re-think each data insertion, which encourages a more critical mindset and a more questioning approach. It is noteworthy that the models' blank versions already include specific values which were considered to be either fixed

or relatively stable, namely the capacity of the products' bottles, components' dimensions/ weights, the weight/volume ratio associated to road freight transport, and tax rates.

Each of the five models developed represents a different step in COMPORTA's yearly cost management and control process. As such, it is of the utmost importance to clarify not only the particular functionality and usefulness of each model but also the specific dynamic that must exist between the various models to ensure reliable planning/control of the business operations.

Due to the already explained importance of planning productions ahead, COMPORTA should start, some months in advance, by budgeting the unit sales by-product for the entire subsequent year with the help of the Sales Forecast model. The budgeted unit sales (extracted from this first model) are the baseline for the next step, which is to (still some time in advance) use the Planning Budget model to budget and plan all the twelve months of the following year, outlining the plan to be followed throughout that year.

By the time that year under budget arrives, COMPORTA should, month by month, use the Actual Sales Registry model to record the unit sales actually made for each PoS. This Excel model provides support for the Planning Forecast model. Also, month by month, in a newly created copy of the respective year's approved Planning Budget Excel Workbook (which will be the year's Planning Forecast model), the company should replace past expectations with actual results, adjusting outdated expectations for the future.

Additionally, whenever COMPORTA PERFUMES feels the need to control its operations, the company can resort to the Performance Measurement & Control model to evaluate its performance by comparing the plan outlined in the budget with the company's actual results. Although this is not a mandatory monthly step in COMPORTA's newly implemented Management Control System, it is strongly recommended that the company carries out this

control on a monthly basis, in order to continuously track performance, learn from mistakes, and adjust future actions and decisions on an informed basis.

Despite being different models, as will be further detailed in the following sections, all five Excel Workbooks share a similar structure, which consists of a set of inputs and auxiliary worksheets that, together, result in final automated dashboards.

Rules & Instructions Worksheets

Each of the five Excel Workbooks that have been developed begins with a "RULES & INSTRUCTIONS" Worksheet. These Worksheets outline the specific rules and guidelines that must be followed to properly introduce the right data into the Inputs Worksheets (further detailed in the following sub-section). All inputs asked to be entered in each model are specifically explained in these Worksheets, namely what data should be inserted and how, which rationale should be used, and even some tips on where to extract good estimates for such data. Considering that COMPORTA's management team members are not specialized in accounting and may find difficulties in interpreting specific invoices, the group of students defined that creating a clear set of rules and guidelines for each model developed was a top priority. To avoid that erroneous information is presented on the final automated summaries, overviews, and dashboards used for decision-making without the management team being aware of such, it is crucial that the person in charge of entering the necessary inputs in each of these models begins by learning how to do it correctly (by reading the "RULES & INSTRUCTIONS" section corresponding to each respective input). Only after carefully reading the guidelines, the user is prepared to fill in each of the models' inputs with extreme caution and meticulousness.

Inputs Worksheets

Inputs Worksheets are the Excel Worksheets in which COMPORTA's management team is expected to insert all the data required for the information to be ultimately presented in the different analysis dashboards that will be used for operational decision-making.

The previous Excel files COMPORTA employed as accounting tools, as indicated in the Problem Statement section, were not automated and prevented the company from preserving accurate and timely records of past, actual, and budgeted data. To tackle these problems, two major decisions were made upon the creation of the different Excel Workbooks: 1) required inputs were organized by categories and respectively placed into different Worksheets in a way that each Worksheet saved a different set of values for the corresponding year and 2) automated dashboards worksheets were separated from inputs to eliminate the need to hard code data.

In Inputs' Worksheets, data is inserted in the corresponding month, which means each data entry becomes permanently associated to the respective date when it is stored. As such, apart from feeding the different analysis dashboards, each model's Inputs Worksheets are meant to gather past, actual, and budgeted yearly operational/financial data so that it is easily and continuously accessible to COMPORTA's management team. All models' Inputs Worksheets, together, compose the new accounting information system that the present group created for COMPORTA PERFUMES.

Auxiliary Worksheets

For each model, a set of Auxiliary Worksheets were created. These Auxiliary Worksheets are the mechanisms of the models, where the data entered in all Inputs Worksheets is converted into valuable outputs. Auxiliary Spreadsheets comprise several intricate calculations scattered throughout numerous tables, and most of its values form the basis of the information displayed on the dashboards' worksheets that the business will use to support its managerial decisions.

Given the significance of these Worksheets for the overall performance of the models and that interaction between these interfaces and the management team is not required in any way for the automated dashboards to function properly, it was decided to hide and protect its content. In this context, the validity of the models is preserved and the risk of accidentally introducing a value in one of these Sheets and corrupting the data for analysis is reduced.

Copy From To Worksheets

As previously mentioned, the management control structure developed requires expenses to be justified and approved in each new budget period, to ensure better use of the company's resources. However, when starting these budgets, the enterprise is requested to introduce data that may be difficult to estimate with so much time in advance, such as beginning inventory values or past purchases/productions expected to arrive in stock during the year under budget. In these cases, one can refer to the "Copy From To" Worksheets of the previous year's Planning Forecast Excel Workbook to extract good estimates for such values. These Worksheets display several "Click to COPY" buttons that allow the user to automatically copy the desired data (to then paste it in the respective Planning Budget Excel Workbook of the year under budget).

The present group of students opted for the creation of these "Copy From To" Worksheets rather than automatic direct links between Excel Workbooks to allow COMPORTA's management team to make any necessary adjustments to these estimates in light of their actual expectations for the year under budget.

Summaries, Operating Budgets, and Overviews Dashboards

The figures, after being collected through the Inputs Worksheets and processed via Auxiliary Worksheets, are displayed into three distinct types of analysis: Summaries; Operating Budgets and Overviews Dashboards.

For every Workbook, Summary Worksheets gather and display the most germane information that Auxiliary Worksheets calculate. They were created with the intention of providing management with all the needed tools for planning and controlling operations in an organized and defined way, separating them by the different parts of the end-to-end processes, such as unit sales, DMs' unit requirements and purchase timings, manipulation orders, and inventory units. These are not intended to be interactive, but rather static tools for management to anticipate COMPORTA's operational decisions.

On the other hand, Operating Budgets are intended to be tools for the company to keep track of their planning and structure future decisions based on revenue and expenditures expected for under budget. Various specific Operating Budgets were developed and each one was structured in a way that is easy for the company to extract insightful financial information.

Finally, Overviews Dashboards are more visually appealing and user interactive ways of displaying valuable information. Here, COMPORTA's management team can choose what is essential for them to analyse, by selecting, for instance, specific products and months in the dropdown filters displayed in each dashboard. These tools enable management to evaluate the expected performance of the marketed products to base future decisions accordingly.

6. Limitations

Understanding limitations is crucial for contextualizing study results, evaluating the reliability of the WP, and assigning a level of confidence to the findings and outputs delivered to COMPORTA PERFUMES. Moreover, it can only benefit the firm object of this work paper to be fully aware of the delivered models' limitations, so that the company's management team can define strategies to mitigate any downsides in time.

In this section, limitations are going to be explained and described in a clear and detailed manner. Then, reasons are going to be presented on why each of those constraints were

insurmountable given the methodology selected for the development of this WP. For organization purposes, the limitations are divided in two major sub-sections: Methodological Limitations and Researcher Limitations. The first relates to the way this project was carried out and the different Management Control models were designed, and the latter includes elements relating to the researchers' decision-making, skills, and circumstances.

Methodological Limitations

Firstly, the high number of Worksheets and inputs management needs to deal with when utilizing the developed model could be interpreted as a limitation on the ease of use of the model. Spread across five different Excel Workbooks, dozens of Worksheets and tables require numerous and sometimes very specific inputs. However, this carries some associated costs, as it makes management obliged to dispend significant time carefully considering and gathering every element that the developed models require for accurate cost management and performance control. Moreover, it also makes the probability of error induced by the models' users to be significantly higher, making its usage more inconsistent with reality. Thus, when first facing the models (considerably more complex than the ones COMPORTA previously used), management might feel overwhelmed by the amount of new information and thus find it difficult to navigate through the designed control tool.

However, due to the necessity of having the information requested in the different inputs available for the models' functionality and to the impossibility of automatizing the process, it was not possible to fully overcome the previous limitation. As COMPORTA does not have a structured information system to assist in its operations, the consulting team could not link the developed Excel Workbooks directly to the respective information systems of the sub-contracted accounting team, of the different suppliers, and of the different PoS. As such, there is the need to require such information to be inserted by COMPORTA via input. Nevertheless,

every input is meaningful and contributes in equal part for the whole functioning of the model. In that sense, although this complexity and its inherent challenges are acknowledged, the consulting team hereby claims that there are no redundant inputs and that maximum value brought up by the present deliverable depends on every single one. Without this complexity being added to the developed model, the company would never have at its disposal Planning and Control models that not only did justice to the level of detail sought but that would also fit its production model's intricacy. To diminish this specific limitation, the present group of students decided to formulate a detailed set of rules in each Workbook - the "RULES & INSTRUCTION" Worksheets – to support users and guide them through every input insertion.

Within the inputs subject, one more limitation of the models is the hurdle of estimating some of the required inputs, namely the time between PoSs' orders or which/how many units of products PoSs will purchase. This might be the biggest source of deviation between the models and reality, since the Supporting Sales Forecast model is the baseline of the Planning model. Hence, it is expected that a large portion of the error will be traced to these inputs.

However, after careful consideration, the group assessed that this issue is common among budgeting processes of companies with business models similar to COMPORTA's. No model is perfect, nor does it predict reality in its entirety. Although some inputs are rather difficult to manage, several hints (scattered in the Inputs and RULES & INSTRUCTION Worksheets) were provided to assist the company in such estimates, in order to mitigate large deviations.

Another limitation would be that the model demands that COMPORTA anticipates business decisions a lot of time in advance. By incorporating, in the production processes of its products, orders to manipulation companies and the delivery of several components, that can take up to months to be satisfied, COMPORTA's unusual manufacturing organizational structure makes it utterly germane to start planning months prior to when these processes actually take place.

The consulting team is aware that, by increasingly adding time to planning, the predictions will gradually lose significance and precision. As this problem surges from the inherent business model, it was concluded that such decision will benefit COMPORTA in the best way possible. This will enable the company to be ahead of future circumstances and reduces the risk of delayed productions due to DMs' arrivals behind schedule, and stock-out scenarios. In addition, to prevent the Planning Budget document from rapidly becoming out-of-date, considering the uncertainty inherent to planning in advance, the group of students decided to create the Planning Forecast model to assist in the decision-making process.

In addition, the consulting team points out that the Excel models delivered to COMPORTA PERFUMES only allow for the possibility of adding four new products. Furthermore, these added products must be perfumes and must be manipulated by the manipulation/fabrication company Bachs. This is an obvious limitation since it does not consider a scenario where COMPORTA decides to make drastic changes to its product portfolio – if the company decides to launch two new perfumes each year, the model is only fit for the next two years – or even diversify it and launch the brand into new not-perfume-related product lines. Similarly, a scenario where COMPORTA decides to change the manipulation company it usually resorts to for the manufacturing of its perfumes (Bachs) would be out of the model's scope.

When deciding the number of new products possible for management to account for, this group decided that, based on the several meetings conducted with the micro enterprise, it made sense to pursue a more conservative approach, since it was acknowledged that COMPORTA PERFUMES needs to cement the already launched products before creating and marketing new ones. Hence, already including two perfumes known to be a management's bet in 2023 – Will and 50 –, adding four new possibilities to the model seemed to be the appropriate amount (making the group feel secure about this decision for the model's future functionality). Likewise, the decision on whether to include new products from other categories was made

upon what it was perceived as being a top priority for the near firm's future (perfumes rather than new product categories). The decision to select Bachs as the manipulation company responsible for any newly added perfumes, on the other hand, was made in light of what was communicated by COMPORTA PERFUMES' management team regarding this matter, more specifically that this partnership would last and was a defined path in the company's strategy. Regardless, since it would be impossible for the present group of students to know the specific way in which a new company would calculate the fabrication unit costs charged to COMPORTA, giving management the option of including a new supplier would make the model too complex. This was considered undoable to achieve in the available time span the group had its side. Nevertheless, it is the present team's strong belief that this overall decision is as faithful to COMPORTA's needs, vision and strategy as it possibly could be.

The last methodological limitation found was the fact that the models exclude the bundles of products marketed by COMPORTA PERFUMES (porcelain candleholder and a candle) and the online sales channel. As sales of product bundles and online sales are rather insignificant for COMPORTA's financial health, it was decided to trade the slightly higher imprecision in the Planning Budget and Forecast models outputs for a lesser complexity level. Nevertheless, both bundles and online unit sales were considered when assessing actual revenue.

Researcher Limitations

The present WP's development depended on having access to people, organizations, data, and documents. However, for reasons beyond COMPORTA's or the present group of students' control, such accesses were limited at some times. Having developed a planning and controlling model for COMPORTA's operations, the WP heavily depended on information regarding accounting and cost-related data – provided either by the accounting team (external service hired by the micro-enterprise) or other external suppliers, such as transporters or warehousing

providers – to deal with costs in a detailed and exact manner. However, contact between parties was, at times, very limited and responses to the present group of students' questions were given with a time delay of many weeks, which limited the workflow and possibly the outputs.

Another limitation was the fact that the invoices firstly provided to the present group of students were few and disorganized. The set of invoices from both suppliers and clients were dispersed throughout time, which made its analysis rather difficult. Having in mind that the group was not provided access to a complete set of invoices for an end-to-end production process (and hence to all the costs that an entire production process comprises), the understanding of COMPORTA's products' process flows was more challenging and time consuming. Besides, not having invoices from the same period available derived other challenges when developing the appropriate control mechanisms to measure performance, such as the understanding of how these costs were dealt with (from an accounting perspective). Furthermore, since it was necessary for the consulting team to spend a considerable amount of time on the initial task of organizing invoices, considering the official deadlines imposed by the WP, it was not possible for the present group of students to elaborate COMPORTA's budgeting process for the upcoming year (2023). Due to these time constraints and the fact that the company did not fully understand its cost structure before the starting of the WP, only the blank strategic Planning and Management Control models will be delivered to the company. However, during the following months, the present consulting team is entirely available to 1) give continuity to the process (already started) of introducing the models developed and 2) to monitor and guide COMPORTA's management team throughout the first budgeting process.

Lastly, the tool chosen to develop the Management Control System for COMPORTA PERFUMES was Microsoft Excel. This might be considered as a limitation, considering that Excel does not have some of the characteristics or capacities that other (more advanced) software might offer. For instance, it is not as visually appealing as Tableau, and visualizations

are of great importance when overviewing Key Performance Indicators (KPIs) or planning based on data. As such, the utilization of a more complex software could have helped the deliverable by making it possible to include more variables and shape inputs in a more effective/visual way.

Although the above-mentioned issues might negatively impact this study to a certain extent, the present group of students is confident that the deliverables developed in this WP are of a considerable degree of excellence. On this matter, the consulting team advocates that the developed models have the level of detail and the potential to bring significant value to COMPORTA and to be used as trustworthy decision-making tools by the management team.

7. General Recommendations and Future Research Possibilities

Generally, the demand for niche perfumes is not known with precision and hence neither are COMPORTA PERFUMES' expected stock movements. Acknowledging the negative consequences of not following a specific rule for when to order the production of a product for COMPORTA's operational efficiency – which are no longer foreign to the present WP's report –, this consulting team recommends the company to establish a re-order point. In theory, this re-order point tells the company when to re-order products by prompting the purchase of a pre-established amount of replenishment inventory, to avoid stock-out scenarios. Ideally, when the number of units of a given product in inventory reaches this number (re-order point), the company knows that it is time to re-order the production of that product to the respective manipulation/fabrication company. As long as the actual unit sales evolve according to COMPORTA's forecasts and the manipulation/fabrication companies comply with the expected delivery times, this should enable the micro-enterprise to minimize the total amount of inventory stored while minimizing fulfilment actions' disruptions. Since this re-order point is a required input in the developed Planning Budget model, COMPORTA PERFUMES'

management is advised to follow a structured rationale (adapted to its needs and supply chain structure) instead of overly vague assumptions or personal intuition to insert that value. In this context, according to the approach suggested by Drury (2015), COMPORTA should consider the following equation (I) to calculate the appropriate re-order point:

$$Re-order\ point = \ lead\ time^{5}\ (in\ months) * \ monthly\ usage^{6}\ during\ lead\ time\ period \quad \text{(I)}$$

Moreover, recognizing COMPORTA's rising business potential, selling the company in a foreseeable future is within the company's founder's plans. The developed Management Control System, despite presenting relevant figures that may indicate the appropriate timing for the organization's sale, does not provide an estimate of what the selling price must be. Under these circumstances, the company would benefit from adding a valuation tool to the already existing models' functions. Hence, the consulting team suggests the inclusion of valuation measures to determine the economic value of COMPORTA PERFUMES in the developed system, which would rely upon the usage of the data displayed across the five distinct models.

The present WP divides into three individual components, each one respective to a different step of the Management Strategic Planning and Control System implemented for COMPORTA PERFUMES. These three individual components are presented below and detail both the decisions made throughout the consulting project and the models developed as a proposed solution to COMPORTA's stated problems.

[5] Since COMPORTA resorts to four different manipulation/fabrication companies to handle the manufacturing of its products, to avoid adding unnecessary complexity to the model, the *lead time (in months)* considered in this calculation should be the average number of months that the four manufacturers take to fulfil and deliver the respective products after an order is placed.
[6] To avoid adding unnecessary complexity to the model, the *monthly usage during the lead time period* considered in this calculation should be the average forecasted unit sales COMPORTA expects to register per month for all products divided by the number of products marketed during that time frame.

II. Individual Part – André Filipe de Albuquerque Brás

8. Literature Review – Introduction to Costing Systems and Methods

Costing Systems

A costing system is often defined as the "set of procedures used to measure cost"(Labro 2019). The costs incurred in an end-to-end process are often difficult to measure, predict and allocate, and as firms have limited knowledge of the true cost function that relies upon these processes, costing systems may be viewed as an instrument that helps organizations in getting a reliable approximation. No matter what industry a given company is in, in order to make efficient and effective business decisions, it is utterly germane for its management team to understand the cost structure inherent to its operations. Indeed, according to Labro 2019, costing information is useful in a variety of administrative and organizational situations, mentioning the following: decision-making, cost management, inventory valuation for financial and tax accounting, and control and performance measurement.

Firms operate with scarce resources, and so, they must make decisions about it, such as product mix, pricing, whether to outsource production or to produce the product indoors, choosing the right supplier, transporter, marketing campaigns, etc. Having these decisions in mind, a company's goal is to maximize value, and costing systems are helpful when trying to measure the appropriate marginal cost to these issues. By estimating the marginal cost, businesses may assess how the volume produced influences the cost and ultimately profits(Labro 2019). Followingly, cost management is also an objective that can be pursued by implementing an efficient costing system. In such a competitive environment, and as firms want to maximize their profit, this means that they will have to maximize revenues and/or minimize costs. An insightful grasp of the production processes will be crucial to this goal, as well as the knowledge of the resources they have at their disposal.

Thirdly, as enterprises are required to comply with regulatory obligations, inventory valuation for financial and tax accounting, costing systems are crucial for such companies.

For the two above-mentioned purposes, costing systems and information will benefit the company in different aspects. While in cost management cost information will help managers to efficiently allocate resources and thus maximize profits, in inventory valuation, cost information will mainly aid external users of Financial Statements and tax authorities.

The final objective is control and performance evaluation. Here, the purposes of the usage of cost information are rather subjective, where each person optimizes their utility-producing aims. For instance, management accounting is more interested in the internal financial operations of the company than financial accounting, which concentrates on the outward financial activities of an organization. In that sense, different agents will have different motivations.

Acknowledging how to manage COGS and Inventory as a retailer

The basic concept associated with any retailer is the distinction made between Cost Of Goods Sold (COGS), the expense, and inventory, the asset. Throughout the end-to-end processes, the "cost of inventory sold shifts from asset to expense, when the seller delivers the goods to the buyer" (Harrison Jr. et al. 2017, 330). The Income Statement displays finished items that are sold, and the Balance Sheet displays finished goods that are still in stock.

COMPORTA's whole operations rely on production outsourcing. Hence, one must understand the accounting concepts inherent to outsource based business models. Similar to companies that outsource their production processes, manufacturers manage their inventory identically, with the exception that manufacturers purchase raw materials and develop them (as "work-in-progress") until they are ready to be sold. Manufacturers allocate to the work-in-progress any expenses and overheads they accrue during the production process (Harrison Jr. et al. 2017).

Hence, retailers' inventory mainly accounts for finished goods and components they ship to their suppliers, while manufacturers' inventory is composed of materials at many stages of completion. As COMPORTA's end-to-end business model resembles the ones of a retailer the most, the next sections will mainly approach the accounting of finished goods.

Weighted Average Cost Method

The inventory value (in euros) that is stated in a firm's Balance Sheet and the Cost Of Goods Sold that is present in the company's Income Statement are computed according to the following equations (I and II) (Harrison Jr. et al. 2017):

$$Inventory = Cost\ per\ unit\ \times Number\ of\ units\ of\ inventory\ on\ hand \quad \text{(II)}$$

$$Cost\ of\ Goods\ Sold = Cost\ per\ unit\ \times Number\ of\ units\ of\ inventory\ sold \quad \text{(III)}$$

Average Cost can be described as a technique for evaluating stock that was acquired at various prices that value every item at its average cost (Drury 2015). The formulas stated above show that it is necessary to calculate a unit cost for products to determine the COGS and the cost of closing out inventory. To obtain unit costs, one must first add the net purchase of inventory to the beginning inventory value and divide the sum by the new number of total units of inventory on hand. The result – the Weighted Average Cost – is then used to calculate the COGS and closing inventory value (multiplying it by the total units sold and the closing inventory total units, respectively) (Simeon 2018). As specified by Bragg (2007), this approach has the benefit of not having a database listing all potential layers of inventory together with their various acquisition costs. As an alternative, all the units in stock are accounted for at the same weighted-average value.

The periodicity of this calculation must be effectuated every time new finished goods/inventory are bought or produced, according to Simeon and Ohaka (2018) and S. M. Bragg (2007), who say that a new, slightly modified weighted average for all the parts in inventory will be created

whenever additional units are brought to stock, with the costs of the additions being added to the weighted average of all currently in stock goods (both the previous and new ones).

The average production cost of a product is also determined using the weighted average approach. According to (S. Bragg 2017), this method is frequently when: components of inventory items are combined in a way that it is not feasible to allocate a specific cost to an individual unit; the accounting system cannot effectively track LIFO or FIFO inventory layers; Inventory items are so similar to one another that it is impossible to assign costs to individual units; in a case where this method is allowed both under the GAAP and the IFRSs.

9. Problem Formulation

A cost accounting system should follow a series of good practices, to be beneficial to the company that uses it for planning and making decisions regarding its operations. First and foremost, this system should fit the organization. Factors such as the size of the firm, the economic conditions, the business' vision, etc., should all be taken into account. Secondly, it must be straightforward and practical in order to prioritize utility, by avoiding the input of scrupulous and unnecessary information. Thirdly, any member of the organization should be capable to easily understand and use this costing system. Fourthly, any data present in such system must be accurate, or else the firm could be jeopardizing the output of the system.

As previously stated in the group part of the present report, COMPORTA PERFUMES' initial set of accounting systems was not appropriately dealing with production and financing needs, profitability issues, and resource management and planning. The dearth of automated processes and a suitable data collection method – as DMs cost data was archived separately in invoices and business emails from suppliers – prevented the company from correctly recording costs and analysing cost trends. In fact, as invoices were the only contact COMPORTA had with its product's cost structure, management did not know which costs were involved in production.

By not knowing in full extent the correct tracing of all costs associated with the production of each product, COMPORTA is incapable of analysing each respective unit contribution margin and, therefore, cannot aim to make conscious decisions about the product portfolio.

It is germane to understand what type of costing system was used. In one of the initial Excel documents that the present group of students was handed, the company had a registry of costs it inccurs across all of its operations, namely transport costs, warehousing costs, and selling and administrative costs. This sheet has had the function of collecting and displaying every cost derived from COMPORTA' operations. Besides, the document was also an "attempt" to predict sales, without any solid forecast base. Despite the issues associated to this document, highlighted in the group part of the WP (under the Problem Statement section) namely the lack of a temporal dimension, which is preventing the company from collecting unit costs (by product) throughout time, other problems can be pointed out.

Firstly, the document does not display costs by product. Instead, costs are presented in a product line degree. Even though it allows COMPORTA to understand which product line requires more monetary efforts, it prevents the company from assessing which are the products that are more expensive to produce. In addition, within the same product line, products can have different production costs, since, despite having the same set of components, they all have different essences which are purchased at different prices. Hence, by combining costs from different products (within the same product line) this method does not enable COMPORTA to understand which products have the most expensive essences, for example.

Secondly, the only costs which are traced to products are the DM and manipulation. For instance, transport, and selling administrative costs associated with offerings to PoSs are not associated to any products, not even on a contribution margin level. Instead, these costs are only accounted for as period costs. This means that inventory does not fully reflect the company's

asset structure, nor does the Income Statement reflect real COGS, as transport can be viewed as a product cost, for example. Additionally, this Excel only includes testers, samples, and miscellaneous' costs by product line, failing to give the correct tools for management to fully understand COMPORTA's business. These costs will be further clarified.

Moreover, in this document, COGS were calculated as the global unit price paid to every supplier responsible for part of the respective product line's manufacturing process (essences, components, and manipulation). This value relies on a single input (for each product line), which management calculates without following a structured method (without considering the specific cost of each COGS' parcel). By not individualizing these costs, the company lacks fundamental knowledge for informed decisions regarding its operations. Costs of manipulation (with the main material being cellophane), as the group noticed throughout the project, are the only costs where there is a possible economy of scale associated, i.e., as more volume of products is manipulated, unit cost will be increasingly lower. As such, this step deserves highlighting as contribution margins and, hence, profits, will depend on it.

Furthermore, it is noteworthy that within this Excel document only costs were displayed. The company had no available profitability metric, based on the selling price and unit production costs to understand which are the most and least profitable product line. Wrong conclusions can be taken from this, as a product can be costly and still have a high contribution margin.

10. Developed Solution – Designing a fitting costing model for COMPORTA

In order to mitigate the above stated issues, the group of students proposed a different costing method that allows COMPORTA to understand the specific costs associated to each product and to conclude which are the most profitable products. As such, within the Planning Budget Excel file, it was decided to develop a and Profitability & Break-Even Analysis for all COMPORA PERFUMES commercialized products to guide future portfolio decisions.

The first step was to increase analysis granularity by recording and displaying costs on a by-product manner and monthly. COMPORTA's portfolio of products is rather extensive, as the firm offers a total of nineteen different products grouped in four product lines. For a small company with the dimensions of COMPORTA PERFUMES, the economic costs of poorly managing such product catalogue are very significant. Hence, every product must be handled having into account its own cost structures and contribution margins, in order to maximize the firm's profits. As such, the group of students realized that it was urgent to develop a costing system that would allow any user to analyse costs in a simple, yet detailed way. This means that four main differences were imposed to the new costing system suggested. The first is that analysis will be conducted by product, instead of being done by product line. As mentioned above, it is essential that management knows how to evaluate each product's performance in the market, making possible for the company to continuously adapt and improve its product line. The second change accounted for is that analysis will follow a monthly basis, instead of a yearly one. This will allow COMPORTA to get a more precise overview of the year's performance, as well as to follow up with every cost trend inherent to its end-to-end processes and possibly take corrective action upon any prejudicial discrepancies. The third change is that every cost within the production of all products will be specified and properly highlighted. One of the main hypotheses considered in any consulting project, that tries to solve a profitability problem, is that changes can be made in the cost structure of the products offered and understanding what kind of costs are most relevant – in monetary terms – in such production can help the company to – perhaps – opt for a different supplier of the costliest component, for example. Finally, in what regards Inputs, it was chosen to treat each one of COMPORTA's different cost types in individual Worksheets. This way, each input can be clearly managed and explained, maximizing comprehension, and minimizing Human errors.

The Excel model has the objective of automatically calculating unit costs for every product, as well as total costs from running COMPORTA's operations and assisting management with product performance metrics such as the gross margin, the Break-Even Point (BEP) and contribution margin.

On a first level, to trace every product's direct cost, management is required to input information regarding each product's components, essences, manipulation costs, and transport. This phase considers specificities such as the different components used to produce each product, different bottle capacities and different essences concentrations. After all costs are inputted, the model automatically calculates the unit cost that will later be used to value inventory and COGS.

Finished Goods, in our model, represent products that are ready to be sold to potential clients. When they are stored in warehouse, they are accounted for as an asset (inventory) and valuation follows the Weighted Average Costing Method. This method was chosen to derive this unit cost for several reasons. The main reason is that COMPORTA's products do not lose value over time and do not spend considerable amounts of time stored. This means that, from an operations point of view, it is equal to sell older inventory and newer inventory. It also simplifies record keeping and cost calculations. The other possibility considered for inventory valuation was the First-in-First-out method, which valuated each different batch of inventory purchased at the price of each individual acquisition. However, the present group of students considered this method to be overly complex having into account that possible variations in prices – charged by suppliers – would not be significative and as representative of COMPORTA's reality as the method chosen. When it comes to the tracing of direct costs that compose finished goods, the present group of students considered the following: components, essences, manipulation, and transportation of components between different stages of production.

The Excel model requires management to input a series of information that allows it to – through hidden Auxiliary Worksheets – calculate a unit cost for each type of costs referred to in the last paragraph and trace them back to a specific product. This way, the model enables COMPORTA's management to – as accurately as possible – find a specific cost at a product level of detail. On the other hand, COGS are calculated in this model having into account the number of products sold in a specific moth and their respective weighted average units cost at that point in time.

Samples, testers and miscellaneous were also accounted for inventory, as they can be sold and generate profits for the company. However, according to COMPORTA's business model decision, these assets are offered to companies. Hence, the present group of students decided to account them as S&A expenses in the moment of any sale. What occurs in COMPORTA's operations is that in every sale COMPORTA makes, it also offers an additional percentage of that sales (in euros) amount in testers, samples and miscellaneous. This percentage is fixed and is of exclusive responsibility of COMPORTA's management team. This is process is called "PoS Re-invest". In what regards the calculation of the monthly costs of testers, samples and miscellaneous, management is required to, in a specific input sheet, input information regarding its PoS Re-invest decisions. Then – for each month of the year under budget - inputs regarding components, essences, manipulation, and transportation are required, and using the same inventory valuation method as finished goods, a weighted average unit cost is calculated, which will both be used in the calculation of inventory and S&A expenses.

Furthermore, the group of students decided to specify manipulation and cellophane costs due to two main reasons. First, this part of production process takes up a considerable percentage of the total product traced costs. This way management can benefit from additional knowledge and might take further action upon a process that will directly impact profits. Secondly, it made sense that cellophane was separated from the rest of the direct costs, as it is the only element

where there truly is a hypothesis for economies of scale, meaning that – for the level of volume of finished goods typically ordered from suppliers – it is realistic to assume that in a near future COMPORTA will face the decision on whether to order in large quantities, for a lower price.

This step in the production process was considered a product cost – and consequently traced to capitalize inventory and compute COGS – because it is directly related to the production of the finished product. The unit cost traced to each product was achieved by using the weighted average unit cost method. Furthermore, the inputs requested were divided into the four different suppliers as a way of assisting COMPORTA's decision-making process.

Transport was the last cost traced to the different products. The present group of students faced the dilemma of whether to consider it as a period cost, and consequently identifying it as an expense, or to trace it to each one of the finished goods, so that it would be capitalized. After careful consideration, it was decided to divide the different stages at which there were transportations associated and treat each one individually. The first transportation occurs from the components' supplier to the logistic service supplier's warehouse. Here, it was assumed that the cost incurred was directly associated with the making of the finished good and, as such, needed to be capitalized into the asset. This cost was assumed to be included as each respective component's unit cost as an input by management. It is therefore excluded from individualization because it is not the company that sub-contracts the service. The second stage was the transportation of the components from the warehouse to each manipulation supplier, where the final product is assembled – and back to the warehouse. This step was chosen to be individualized, as COMPORTA pays for this service and the previous costing system mis estimated this cost. As it is a fundamental step in production, it was chosen to be traced to the finished good's inventory value. Calculations were made so that total cost of transportation would not be divided into each product, giving the model the unit cost, but instead the model would calculate the unit cost taking into account each component and product's specific

dimensions and weight. The last step is the transport of the finished products to customers, and this step was not acknowledged in our model, as COMPORTA does not support its costs.

11. Analysis and Model's Purposes

In an attempt to mitigate the problems above indicated in the Problem Formulation section, a costing system and model were designed based on three fundamental principles: user-friendliness; the premise that every cost capable of interfering with COMPORTA's profits will be effectively computed, traced and accounted for; and the principle that the model will serve as a data collection model as well as it will be able to use for multiple years.

In this section, the overviews will be further explained. After inputting every information required, the Excel model developed in the course of this WP will automatically give management a series of overviews related with profitability and managing costs, following a specific request from COMPORTA.

The Unit Costs By-Product dashboard outputs cost related data in an appealing way based on the previously explained inputs (Appendix 6). It allows management to overview the whole cost structure inherent to each its products. Here, through an intuitive dropdown button, management will be able to visualize all the production costs (COGS) associated with any one chosen product of each of COMPORTA's four main product categories (Perfumes, Scented Candles, Room Sprays, and Al-Qasr). Within each table, the three main cost sections will be exhibited (DM, manipulation & fabrication, and transport). As for DMs, the sub-costs also displayed. This way, and due to the fact that this overview is monthly based on, management will have the capability of focusing on every single detail that composes its outsourced production, without ever waiving the understanding of the big picture - with the assistance of automatic pie charts, make considerations regarding the cost composition (in %) of any product. In addition, by presenting all production costs and weight of each cost in the total COGS (for

the corresponding product), the examination of this dashboard allows management to understand the most expensive feature in the product's production. Consequently, it assists management reassessing supplier choices.

If management chooses to further investigate the profitability of one chosen product, an overview was created to automatically combine every relevant budget inherent to that product's commercialization and guide users through the expected revenues and expenses generated by its sale, every month of the year under budget (Appendix 7). The group of students divided this overview into three main segments: revenues, product costs and period expenses related to the product in question. Management will be able to evaluate the overall performance of any product (of their choosing). The model automatically displays details like the expected unit sales for each of COMPORTA's type of PoS and the prices charged at each one. Besides, management can see for all months the expected essence and components requirements (in kilograms and units, respectively) and the corresponding costs. Moreover, it can assess the expected manipulation cost associated with the units sold. Further, it is also included in the COGS the costs of transporting DM to the manipulation companies and the transportation of the already finalized products from manipulation to the warehouse. Additionally, the model displays all costs associated with offered items: The essence, components, manipulation and transport costs of testers & samples and the purchase cost of miscellaneous items. Finally, the dashboard also presents the national and international distribution costs associated with the product. The consulting team decided to separate these costs considering the price charged for each service is significantly different. In this context, from this dashboard management can perceive the expected gross margin and contribution margin associated to each product (for all months) and assess the major sources of costs.

Furthermore, a dashboard containing a summary on product profitability and success (measured by sales prospects) was designed to give management an overview of the performance of each

product. This dashboard is composed of two main analyses: total profitability analysis overview and product sales & profitability analysis overview. Regarding the total profitability analysis overview, the model automatically presents management four main visualizations. At first (Appendix 8) it will deliver a monthly based chart that summarizes three main KPIs that evaluate financial performance: gross margin[7], contribution margin[8] and operating profit[9]. In order to calculate these KPIs, the present group of students calculated the weighted selling price, which was derived by using each product's selling price adapted to each PoS' coefficient/commission and multiplying the result by the percentage of exiting Retailers, Distributor, and Agents. Furthermore, it is possible to analyse, within the year under budget, the expected evolution of sales revenue, COGS, and costs of PoS Re-invest material (testers, samples, and miscellaneous items). The second main segment, the product sales & profitability analysis overview (Appendix 9), was developed to help to better grasp the performance of COMPORTA's products, financially. Here, users can analyse (for any month chosen) what are the expected top five products with highest predicted sales volume and contribution margin. As a result, this dashboard (which is a summary of the above-described overview) provides management useful insights on budgeted product performance and it can guide future portfolio removal decisions.

Since COMPORTA's primary problem was related to low profitability, it was considered vital to create a model that could deliver a series of specific KPI's, in an organized way, used to assess every product's profitability and allow a detailed Break-Even Point (BEP) analysis. As such, dashboard was designed to enable this analysis (Appendix 10). This overview follows a

[7] The amount of money left after subtracting all direct costs of producing/purchasing the goods it sells. The higher it is, the more money will revert to indirect costs and other expenses.

[8] It represents the portion of sales revenue that is not consumed by variable costs and thus that contributes to the coverage of COMPORTA's fixed costs. The higher this KPI is, the more money generated with the sale of COMPORTA's products is available to cover the business's fixed costs.

[9] The operating profit, being the total income generated from sales after paying off all operating expenses and excluding any.

Top-Down[10] approach and starts by calculating the total BEP (in euros) for a firm profit equal to zero[11]. Knowing the BEP enables manage to make well-informed choices regarding pricing, output levels, and other elements which affect profitability. The model also gives COMPORTA the possibility of targeting a specific profit percentage[12] and knowing the total amount of revenues it must generate in a specific month of its choosing to achieve that goal.

Furthermore, it is germane to increase the level of detail and automatically displaying different KPIs in a product level of granularity. Hence, the model computes, for each and every product sold by COMPORTA, the following: unit gross margin; gross margin; unit contribution margin; contribution margin ratio; Break-Even Point in units[13]; Break-Even Point; Break-Even Point in units for target profit; and Break-Even Point for target profit. Hence, managers can manage the portfolio with a clear vision of what is the goal and what products are expected to be beneficial or not to achieve it, taking corrective action along the way (Appendix 11).

12. Conclusion and Future Research Possibilities

Ultimately, should every step of this costing system be correctly followed, the present model will be a very helpful tool for management to continuously improve its business model and product line. Nevertheless, COMPORTA is advised to continuously improve the model as the firm's reality changes, and include new KPIs, such as Inventory Turnover[14], in order to create a more complete overview of the company's performance. This model is not perfect, however, it does provide managers with a good starting point from which they can improve their understanding of how costs are generated, as well as improve their ability to control these costs.

[10] Top-Down approach tries to gradually proceed from the top to the bottom level of a specific hierarchy.
[11] The Break-Even Point is the total amount of sales generated in order to equal total costs and have a zero profit.
[12] Expressed as a percentage of that month's total revenue.
[13] The total amount of units that must be sold in a specific month in order to achieve a zero profit.
[14] It gauges how frequently a company may sell all its stock in a certain time frame. In addition, it is useful in monitoring pricing and product demand, and, of course, inventory purchasing and managing expenses.

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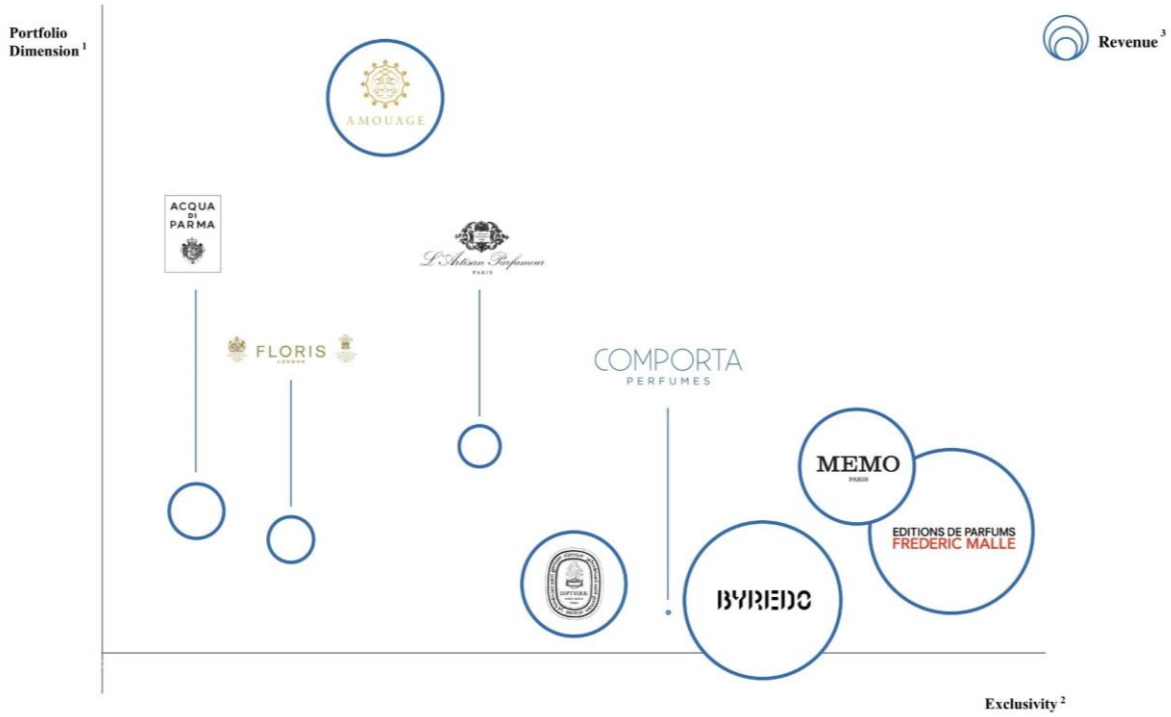
IV. Appendices

Appendix 1 – Niche Perfumery Market Players



Graph 1 – Niche perfumery brands Position Map

(1) Portfolio Dimension refers to the number of perfumes offered by each brand.

(2) Exclusivity was calculated by combining two different variables: Number of retail points (including own stores) and Median Price. It was considered that the fewer points of retail a brand is present in, the more exclusive that brand is. The median price was calculated considering the price range that each brand offers for a 100ml bottle of fragrance.

(3) Regarding Revenues, data was collected on the most recent sales volume each brand.

Appendix 2 – COMPORTA PERFUMES' current product portfolio

ORIGINAL LINE

Name : AREIA SALGADA
Selling Price : 165 €
ozonic | citrus | green

Name : MOSQUITO
Selling Price : 165 €
clean / light floral / musk / ozonic

Name : OLHAR A TRANCOSO
Selling Price : 165 €
tropical | coco bliss | marine

Name : MUDA
Selling Price : 165 €
rose | fresh spicy | aromatic

MILLÉSIME LINE

Name : MOSQUITO MAN
Selling Price : 190 €
ozonic I musky I green I salty I light floral

Name : PALAFÍTICO
Selling Price : 190 €
woody | balsamic | powdery

Name : OCASO
Selling Price : 190 €
white floral I spicy I oriental I carnal I luminous

Name : SELA PARFUM
Selling Price : 225 €
leathery | rose | oud | musk | incense

MASTER & APPRENTICE LINE

Name : FEMME FOUGÉRE
Selling Price : 190 €
classy aromatic I fruity | floral | sweet I gourmand

Name : BRAVO
Selling Price : 190 €
balsamic | herbal | aromatic I fresh spicy I bitter

HOME STORIES COLLECTION

Name : MOSQUIITO
Selling Price : 62 €
fresh | lily of the valley | iris | sandalwood

Name : CAMELLIA
Selling Price : 62 €
bergamot | mint | ginger | flower cardamom | green matetea

Name : CHAMA
Selling Price : 62 €
caramel | praliné | bois | cuir | bois fumés

Name : BRAVO
Selling Price : 62 €
fig | lemon | cedar | copaíba | musk | marine notes

Name : Al-QASR
Selling Price : 100 €
Porcelain candleholder, exclusive Vista Alegre design

Name : AL-QASR + MOSQUITO
Selling Price : 145 €

Name : AL-QASR + CAMELLIA
Selling Price : 145 €

Name : AL-QASR + CHAMA
Selling Price : 145 €

Name : AL-QASR + BRAVO
Selling Price : 145 €

Name : MOSQUIITO
Selling Price : 75 €
fresh | lily of the valley | iris | sandalwood

Name : CAMELLIA
Selling Price : 75 €
bergamot | mint | ginger | flower cardamom | green matetea

Name : CHAMA
Selling Price : 75 €
caramel | praliné | bois | cuir | bois fumés

Name : BRAVO
Selling Price : 75 €
fig | lemon | cedar | copaíba | musk | marine notes

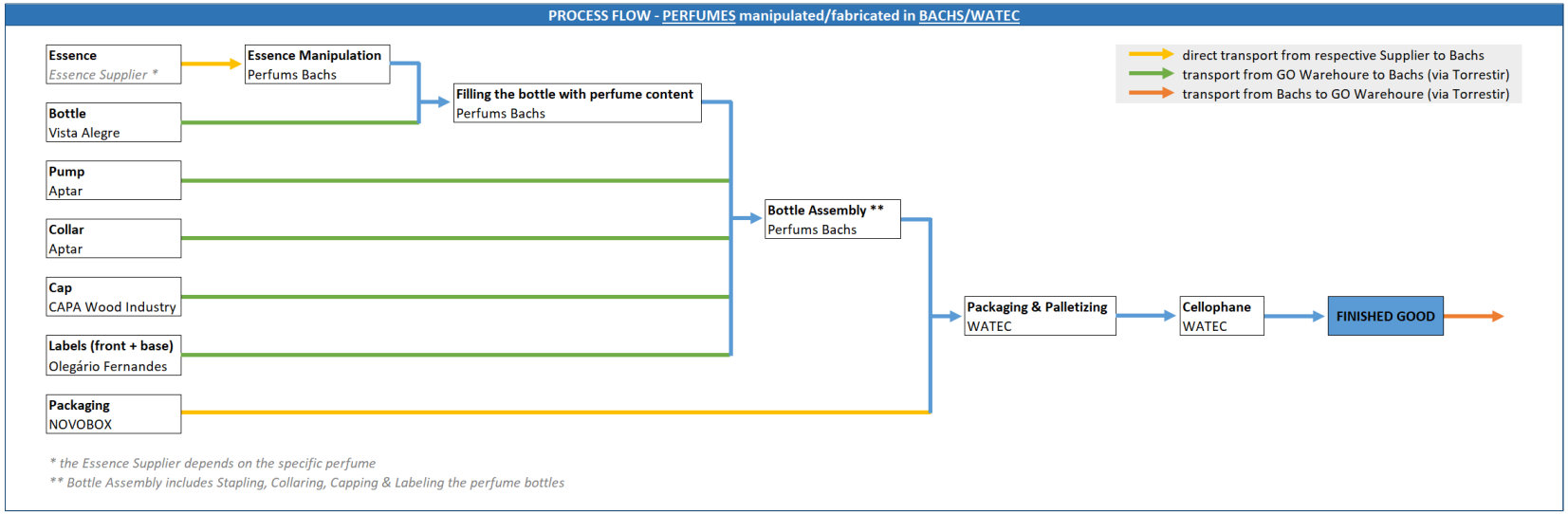
Appendix 3 – List of Direct Materials (by Product Category)

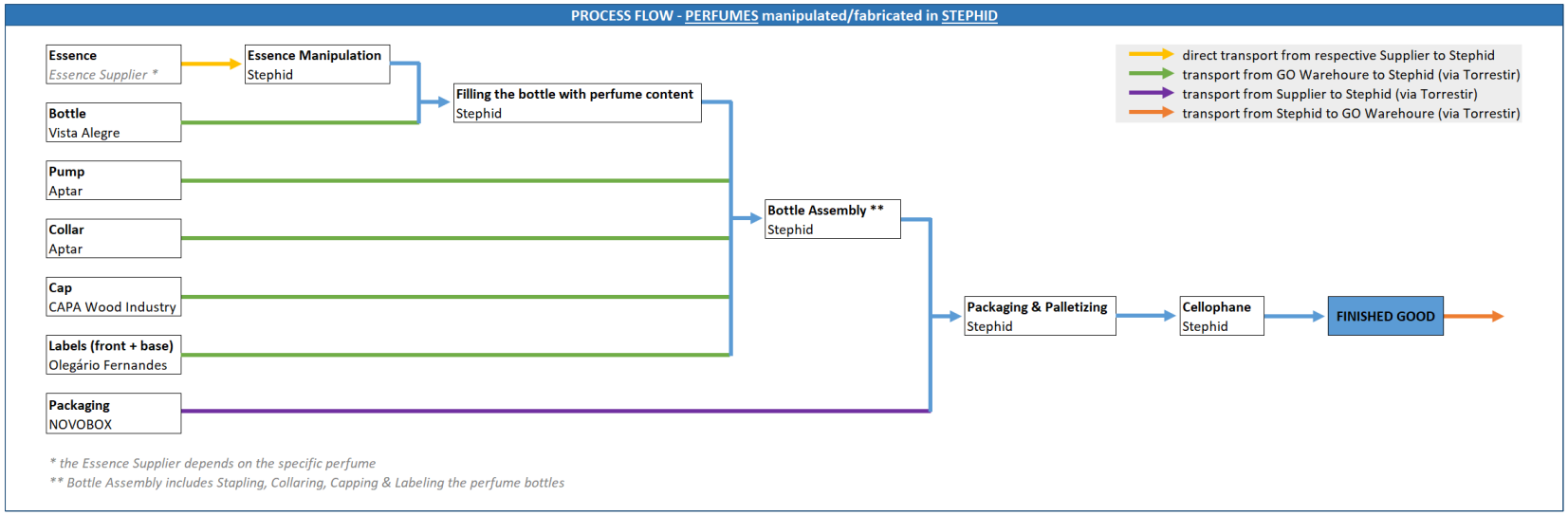
DIRECT MATERIALS								
	PERFUMES	PERFUME TESTERS	PERFUME SAMPLES	SCENTED CANDLES	SCENTED CANDLES TESTERS	ROOM SPRAYS	ROOM SPRAYS TESTERS	AL-QASR
ESSENCES								
ESSENCE	✓	✓	✓	✓	✓	✓	✓	
COMPONENTS								
Perfume Bottle	✓	✓						
Pump	✓	✓						
Collor	✓	✓						
Cap	✓	✓						
Front Label	✓	✓						
Base Label	✓	✓						
Perfume Box Packaging	✓							
Sample Box Packaging			✓					
Candle Box Packaging				✓	✓			
Al-Qasr Box Packaging								✓
Amber Room Spray Bottle						✓	✓	
Letters Room Spray Bottle						✓	✓	
Trigger						✓	✓	
Room Spray Tester Label							✓	

Appendix 4 – List of Meetings

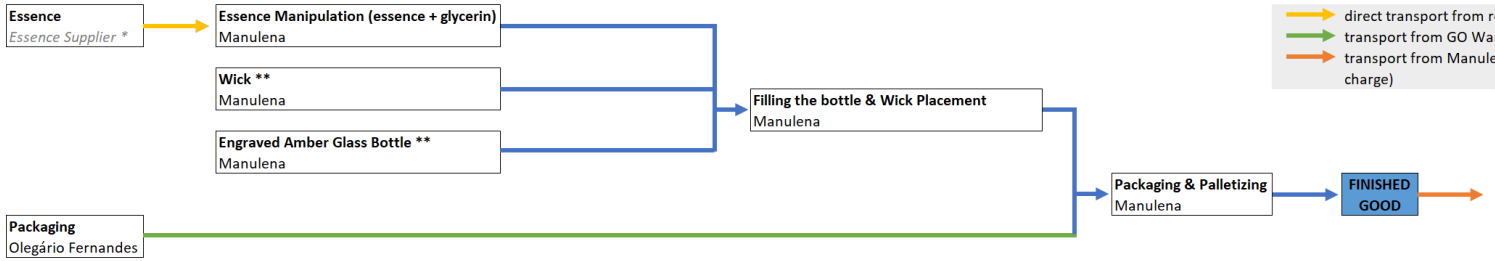
Management Control Field Lab COMPORTA PERFUMES - MEETINGS					
Date	Participants	Role	Place	Duration	Agenda/Topics Discussed
30/05/2022	Pedro Simões Dias	Founder of Comporta Perfumes	Radisson Blu Hotel	1 hour 30 min	Introduction to the Consulting Project; Niche Perfumery Market Overview; COMPORTA PERFUMES' future plans & long-term goals
09/06/2022	Inês Noronha	Marketing & Operations Manager at Comporta Perfumes	Radisson Blu Hotel	1 hour 30 min	Initial understanding of COMPORTA's products' process flows; Start of historical data's collection process (invoices and financial statements)
12/07/2022	Inês Noronha	Marketing & Operations Manager at Comporta Perfumes	Online - Zoom	1 hour	Process Flows/Production processes understanding and Historical data collection (Follow-up)
21/09/2022	Inês Noronha	Marketing & Operations Manager at Comporta Perfumes	Radisson Blu Hotel	1 hour	Clarification of doubts related to Process Flows, Production processes' specificities, Transport of goods, and Distribution of finished goods
14/10/2022	Pedro Simões Dias, Inês Noronha	Founder of Comporta Perfumes; Marketing & Operations Manager at Comporta Perfumes	Radisson Blu Hotel	2 hours	Follow-up on the understanding process of Transport, Storage, and Manipulation Costs; Discussion of Inventory Management Strategies; Assessment of Economies of Scale possibilities in production for cost optimization purposes
27/10/2022	Inês Noronha	Marketing & Operations Manager at Comporta Perfumes	Online - Zoom	1 hour	Feedback regarding the firstly developed Sales Forecast and Actual Sales Registry models' prototypes; SG&A Costs; Suppliers' Payment Terms
31/10/2022	Inês Noronha	Marketing & Operations Manager at Comporta Perfumes	Online - Zoom	30 min	Discussion of the most suitable approach for COMPORTA to budget "PoS Re-Invest %" related decisions
04/11/2022	Inês Noronha	Marketing & Operations Manager at Comporta Perfumes	Online - Zoom	1 hour	Final approval of the Sales Forecast model developed within the Consulting Project
09/12/2022	Inês Noronha	Marketing & Operations Manager at Comporta Perfumes	Radisson Blu Hotel	1 hour	Final approval of the final versions of the management control models developed during the Consulting Project

Appendix 5 – Process Flows by Product Category



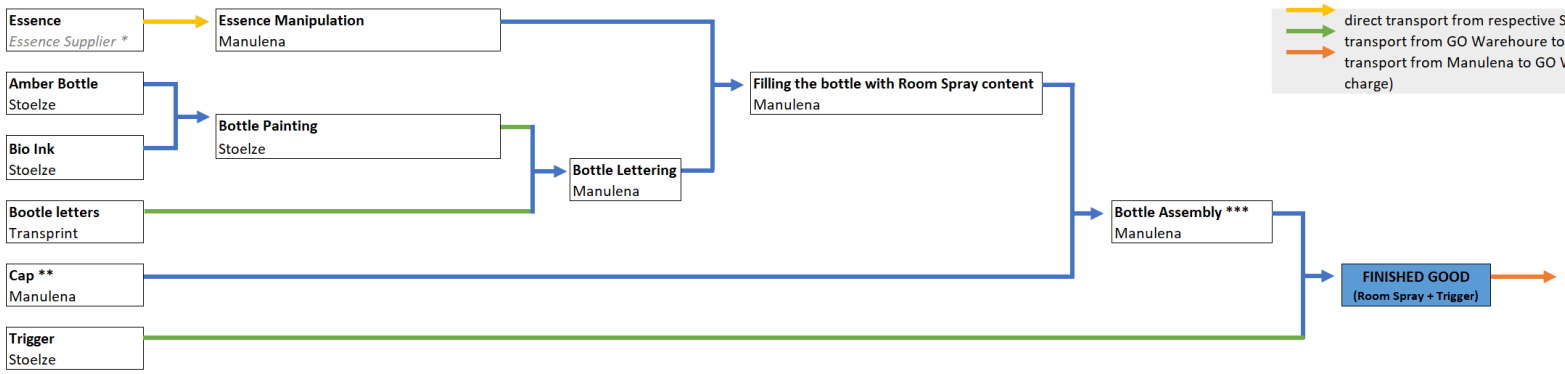


PROCESS FLOW - SCENTED CANDLES manipulated/fabricated in MANULENA



** the Essence Supplier depends on the specific perfume*
*** these Components are supplied by Manulena itself and thus their cost is included in the manipulation/fabrication unit cost*

PROCESS FLOW - ROOM SPRAYS manipulated/fabricated in MANULENA



** the Essence Supplier depends on the specific perfume*
*** these Components are supplied by Manulena itself and thus their cost is included in the manipulation/fabrication unit cost*
**** Bottle Assembly includes Capping the room spray bottles*

PROCESS FLOW - AL-QASR fabricated in VISTA ALEGRE

** this corresponds to the fabrication process of the Al-Qasr Porcelain Candleholder by Vista Alegre*

Note: the figures presented in the appendices below are merely illustrative and do not represent COMPORTA PERFUMES' estimates or actual values for 2023.

Appendix 6 – Unit Costs By-Product Dashboard

PERFUMES - Unit Costs

Select a PERFUME: Palafitico

PERFUMES - Unit Costs	January-23	February-23	March-23	April-23	May-23	June-23	July-23	August-23	September-23	October-23	November-23	December-23
DIRECT MATERIALS	16,80 €	16,91 €	16,91 €	16,91 €	16,91 €	16,91 €	16,91 €	16,91 €	16,91 €	16,91 €	16,91 €	16,91 €
Essence	7,50 €	7,50 €	7,50 €	7,50 €	7,50 €	7,50 €	7,50 €	7,50 €	7,50 €	7,50 €	7,50 €	7,50 €
Perfume Bottle	2,75 €	2,87 €	2,87 €	2,87 €	2,87 €	2,87 €	2,87 €	2,87 €	2,87 €	2,87 €	2,87 €	2,87 €
Pump	0,41 €	0,41 €	0,41 €	0,41 €	0,41 €	0,41 €	0,41 €	0,41 €	0,41 €	0,41 €	0,41 €	0,41 €
Collor	0,10 €	0,10 €	0,10 €	0,10 €	0,10 €	0,10 €	0,10 €	0,10 €	0,10 €	0,10 €	0,10 €	0,10 €
Cap	0,54 €	0,54 €	0,54 €	0,54 €	0,54 €	0,54 €	0,54 €	0,54 €	0,54 €	0,54 €	0,54 €	0,54 €
Front Label	0,25 €	0,25 €	0,25 €	0,25 €	0,25 €	0,25 €	0,25 €	0,25 €	0,25 €	0,25 €	0,25 €	0,25 €
Base Label	0,04 €	0,04 €	0,04 €	0,04 €	0,04 €	0,04 €	0,04 €	0,04 €	0,04 €	0,04 €	0,04 €	0,04 €
Perfume Box Packaging	5,22 €	5,22 €	5,22 €	5,22 €	5,22 €	5,22 €	5,22 €	5,22 €	5,22 €	5,22 €	5,22 €	5,22 €
MANIPULATION & FABRICATION	1,55 €	1,55 €	1,55 €	1,55 €	1,55 €	1,55 €	1,55 €	1,64 €	1,64 €	1,64 €	1,64 €	1,64 €
TRANSPORT *	0,08 €	0,08 €	0,08 €	0,08 €	0,08 €	0,08 €	0,08 €	0,08 €	0,08 €	0,08 €	0,08 €	0,08 €
TOTAL Unit Cost Palafitico	**18,42 €**	**18,53 €**	**18,53 €**	**18,53 €**	**18,53 €**	**18,53 €**	**18,53 €**	**18,62 €**	**18,62 €**	**18,62 €**	**18,62 €**	**18,62 €**

*via TORRESTIR

* **TRANSPORT** of Components from GO Warehouse to Manipulation Companies and of Finished Goods from Manipulation Companies to GO Warehouse **via TORRESTIR**

SCENTED CANDLES - Unit Costs

Select a SCENTED CANDLE: Candle Mosquito

SCENTED CANDLES - Unit Costs	January-23	February-23	March-23	April-23	May-23	June-23	July-23	August-23	September-23	October-23	November-23	December-23
DIRECT MATERIALS	1,36 €	1,36 €	1,36 €	1,36 €	1,36 €	1,36 €	1,36 €	1,36 €	1,36 €	1,36 €	1,36 €	1,36 €
Essence	0,67 €	0,67 €	0,67 €	0,67 €	0,67 €	0,67 €	0,67 €	0,67 €	0,67 €	0,67 €	0,67 €	0,67 €
Candle Box Packaging	0,69 €	0,69 €	0,69 €	0,69 €	0,69 €	0,69 €	0,69 €	0,69 €	0,69 €	0,69 €	0,69 €	0,69 €
MANIPULATION & FABRICATION	3,87 €	3,87 €	3,87 €	3,87 €	3,87 €	3,87 €	3,87 €	3,87 €	3,87 €	3,87 €	3,87 €	3,87 €
TRANSPORT	0,03 €	0,03 €	0,03 €	0,03 €	0,03 €	0,03 €	0,03 €	0,03 €	0,03 €	0,03 €	0,03 €	0,03 €
TOTAL Unit Cost Candle Mosquito	**5,26 €**	**5,26 €**	**5,26 €**	**5,26 €**	**5,26 €**	**5,26 €**	**5,26 €**	**5,26 €**	**5,26 €**	**5,26 €**	**5,26 €**	**5,26 €**

*via TORRESTIR

* **TRANSPORT** of Components from GO Warehouse to Manulena **via TORRESTIR**
* This table does NOT include the transport of Finished Goods from Manulena to GO Warehouse. This transport is in charge of Manulena itself and thus it is expected to be included in the Scented Candles' Manipulation & Fabrication's budgeted unit cost.

ROOM SPRAYS - Unit Costs

Select a SCENTED CANDLE: Room Spray Camellia

ROOM SPRAYS - Unit Costs	January-23	February-23	March-23	April-23	May-23	June-23	July-23	August-23	September-23	October-23	November-23	December-23
DIRECT MATERIALS	5,77 €	5,77 €	5,77 €	5,77 €	5,77 €	5,77 €	5,77 €	5,77 €	5,77 €	5,77 €	5,77 €	5,77 €
Essence	4,01 €	4,01 €	4,01 €	4,01 €	4,01 €	4,01 €	4,01 €	4,01 €	4,01 €	4,01 €	4,01 €	4,01 €
Amber Room Spray Bottle	0,46 €	0,46 €	0,46 €	0,46 €	0,46 €	0,46 €	0,46 €	0,46 €	0,46 €	0,46 €	0,46 €	0,46 €
Letters Room Spray Bottle	0,75 €	0,75 €	0,75 €	0,75 €	0,75 €	0,75 €	0,75 €	0,75 €	0,75 €	0,75 €	0,75 €	0,75 €
Trigger	0,56 €	0,56 €	0,56 €	0,56 €	0,56 €	0,56 €	0,56 €	0,56 €	0,56 €	0,56 €	0,56 €	0,56 €
MANIPULATION & FABRICATION	1,98 €	1,98 €	1,98 €	1,98 €	1,98 €	1,98 €	1,98 €	1,98 €	1,98 €	1,98 €	1,98 €	1,98 €
TRANSPORT	0,04 €	0,04 €	0,04 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
TOTAL Unit Cost Room Spray Camellia	**7,79 €**	**7,79 €**	**7,79 €**	**7,75 €**	**7,75 €**	**7,75 €**	**7,75 €**	**7,75 €**	**7,75 €**	**7,75 €**	**7,75 €**	**7,75 €**

*via TORRESTIR

* **TRANSPORT** of Components from GO Warehouse to Manulena **via TORRESTIR**
* This table does NOT include the transport of Finished Goods from Manulena to GO Warehouse. This transport is in charge of Manulena itself and thus it is expected to be included in the Room Sprays' Manipulation & Fabrication's budgeted unit cost.

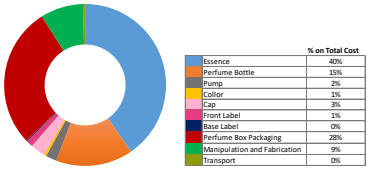
AL-QASR - Unit Costs

AL-QASR - Unit Costs	January-23	February-23	March-23	April-23	May-23	June-23	July-23	August-23	September-23	October-23	November-23	December-23
DIRECT MATERIALS	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €
Al-Qasr Box Packaging	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €	1,73 €
FABRICATION	13,00 €	13,00 €	13,00 €	13,00 €	13,00 €	13,00 €	13,00 €	13,00 €	13,00 €	13,00 €	13,00 €	13,00 €
TRANSPORT												
TOTAL Unit Cost Al-Qasr	**14,73 €**	**14,73 €**	**14,73 €**	**14,73 €**	**14,73 €**	**14,73 €**	**14,73 €**	**14,73 €**	**14,73 €**	**14,73 €**	**14,73 €**	**14,73 €**

* This table does NOT include the transport of Finished Goods from Vista Alegre to GO Warehouse. This transport is in charge of Vista Alegre itself and thus it is expected to be included in the Al-Qasr's Fabrication's budgeted unit cost.

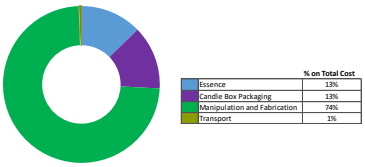
BY-PRODUCT UNIT COSTS Overview

Units Cost Breakdown - Palafitico



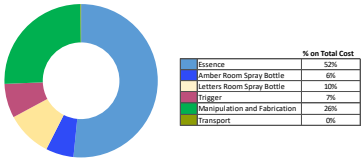
	% on Total Cost
Essence	40%
Perfume Bottle	15%
Pump	2%
Collor	1%
Cap	3%
Front Label	1%
Base Label	0%
Perfume Box Packaging	28%
Manipulation and Fabrication	9%
Transport	0%

Units Cost Breakdown - Candle Mosquito



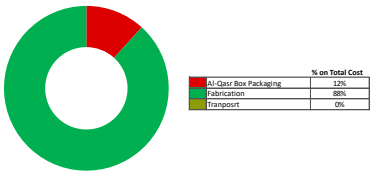
	% on Total Cost
Essence	13%
Candle Box Packaging	13%
Manipulation and Fabrication	74%
Transport	1%

Units Cost Breakdown - Room Spray Camellia



	% on Total Cost
Essence	52%
Amber Room Spray Bottle	6%
Letters Room Spray Bottle	10%
Trigger	7%
Manipulation and Fabrication	26%
Transport	0%

Units Cost Breakdown - Al-Qasr



	% on Total Cost
Al-Qasr Box Packaging	12%
Fabrication	88%
Tranposrt	0%

Appendix 7 – By-Product Profitability Margins Dashboard

BY-PRODUCT PROFITABILITY MARGINS Overview

SELECT PRODUCT :
Mosquito

SALES BUDGET	January-23	February-23	March-23	April-23	May-23	June-23	July-23	August-23	September-23	October-23	November-23	December-23	TOTAL YEAR
Budgeted Unit Sales for Retails	7	15	18	-	7	7	16	13	-	-	-	-	83
Budgeted Unit Sales for Distributors	2	4	5	-	2	2	4	4	-	-	-	-	23
Budgeted Unit Sales for Agents	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL Budgeted Unit Sales	**9**	**19**	**23**	**-**	**9**	**9**	**20**	**17**	**-**	**-**	**-**	**-**	**106**
Budgeted RECOMENDED RETAIL PRICE (PVP)	**165,00 €**	**165,00 €**	**165,00 €**	**165,00 €**	**165,00 €**	**165,00 €**	**165,00 €**	**165,00 €**	**165,00 €**	**165,00 €**	**165,00 €**	**165,00 €**	**165,00 €**
Selling Price for Retails	66,00 €	66,00 €	66,00 €	66,00 €	66,00 €	66,00 €	66,00 €	66,00 €	66,00 €	66,00 €	66,00 €	66,00 €	66,00 €
Selling Price for Distributors	36,67 €	36,67 €	36,67 €	36,67 €	36,67 €	36,67 €	36,67 €	36,67 €	36,67 €	36,67 €	36,67 €	36,67 €	36,67 €
Selling Price for Agents	52,80 €	52,80 €	52,80 €	52,80 €	52,80 €	52,80 €	52,80 €	52,80 €	52,80 €	52,80 €	52,80 €	52,80 €	52,80 €
Sales for Retails	462,00 €	990,00 €	1 188,00 €	- €	462,00 €	462,00 €	1 056,00 €	858,00 €	- €	- €	- €	- €	456,50 €
Sales for Distributors	73,33 €	146,67 €	183,33 €	- €	73,33 €	73,33 €	146,67 €	146,67 €	- €	- €	- €	- €	70,28 €
Sales for Agents	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
TOTAL Sales Mosquito	**535,33 €**	**1 136,67 €**	**1 371,33 €**	**- €**	**535,33 €**	**535,33 €**	**1 202,67 €**	**1 004,67 €**	**- €**	**- €**	**- €**	**- €**	**6 321,33 €**

COST OF GOODS SOLD BUDGET	January-23	February-23	March-23	April-23	May-23	June-23	July-23	August-23	September-23	October-23	November-23	December-23	TOTAL YEAR
ESSENCES													
Kg of Essence used	0,16	0,34	0,41	-	0,16	0,16	0,36	0,31	-	-	-	-	1,91
													-
TOTAL Cost of Essence	**27,54 €**	**58,14 €**	**70,38 €**	**- €**	**27,54 €**	**27,54 €**	**61,20 €**	**52,02 €**	**- €**	**- €**	**- €**	**- €**	**324,36 €**
COMPONENTS													
Perfume Bottles Cost	24,75 €	54,45 €	65,92 €	- €	25,79 €	25,79 €	57,32 €	48,72 €	- €	- €	- €	- €	302,75 €
Pumps Cost	3,69 €	7,79 €	9,43 €	- €	3,69 €	3,69 €	8,20 €	6,97 €	- €	- €	- €	- €	43,46 €
Collors Cost	0,86 €	1,82 €	2,21 €	- €	0,86 €	0,86 €	1,92 €	1,63 €	- €	- €	- €	- €	10,18 €
Caps Cost	4,82 €	10,17 €	12,31 €	- €	4,82 €	4,82 €	10,70 €	9,10 €	- €	- €	- €	- €	56,71 €
Front Labels Cost	2,25 €	4,75 €	5,75 €	- €	2,25 €	2,25 €	5,00 €	4,25 €	- €	- €	- €	- €	26,50 €
Base Labels Cost	0,32 €	0,67 €	0,82 €	- €	0,32 €	0,32 €	0,71 €	0,60 €	- €	- €	- €	- €	3,76 €
Perfume Boxes Packaging Cost	46,98 €	99,18 €	120,06 €	- €	46,98 €	46,98 €	104,40 €	88,74 €	- €	- €	- €	- €	553,32 €
Candle Boxes Packaging Cost	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
Al-Qasr Boxes Packaging Cost	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
Amber Room Spray Bottles Cost	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
Letters Room Spray Bottles Cost	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
Triggers Cost	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
													0
TOTAL Cost of Components	**83,67 €**	**178,84 €**	**216,49 €**	**- €**	**84,71 €**	**84,71 €**	**188,25 €**	**160,01 €**	**- €**	**- €**	**- €**	**- €**	**996,68 €**
TOTAL Cost of Direct Materials	**111,21 €**	**236,98 €**	**286,87 €**	**- €**	**112,25 €**	**112,25 €**	**249,45 €**	**212,03 €**	**- €**	**- €**	**- €**	**- €**	**1 321,04 €**
MANIPULATION & FABRICATION	**13,91 €**	**29,36 €**	**35,54 €**	**- €**	**13,91 €**	**13,91 €**	**30,90 €**	**26,27 €**	**- €**	**- €**	**- €**	**- €**	**163,77 €**
TRANSPORT	**0,68 €**	**1,44 €**	**1,74 €**	**- €**	**0,68 €**	**0,68 €**	**1,51 €**	**1,29 €**	**- €**	**- €**	**- €**	**- €**	**8,03 €**
TOTAL Cost of Goods Sold Mosquito	**125,79 €**	**267,77 €**	**324,14 €**	**- €**	**126,84 €**	**126,84 €**	**281,86 €**	**239,58 €**	**- €**	**- €**	**- €**	**- €**	**1 492,83 €**

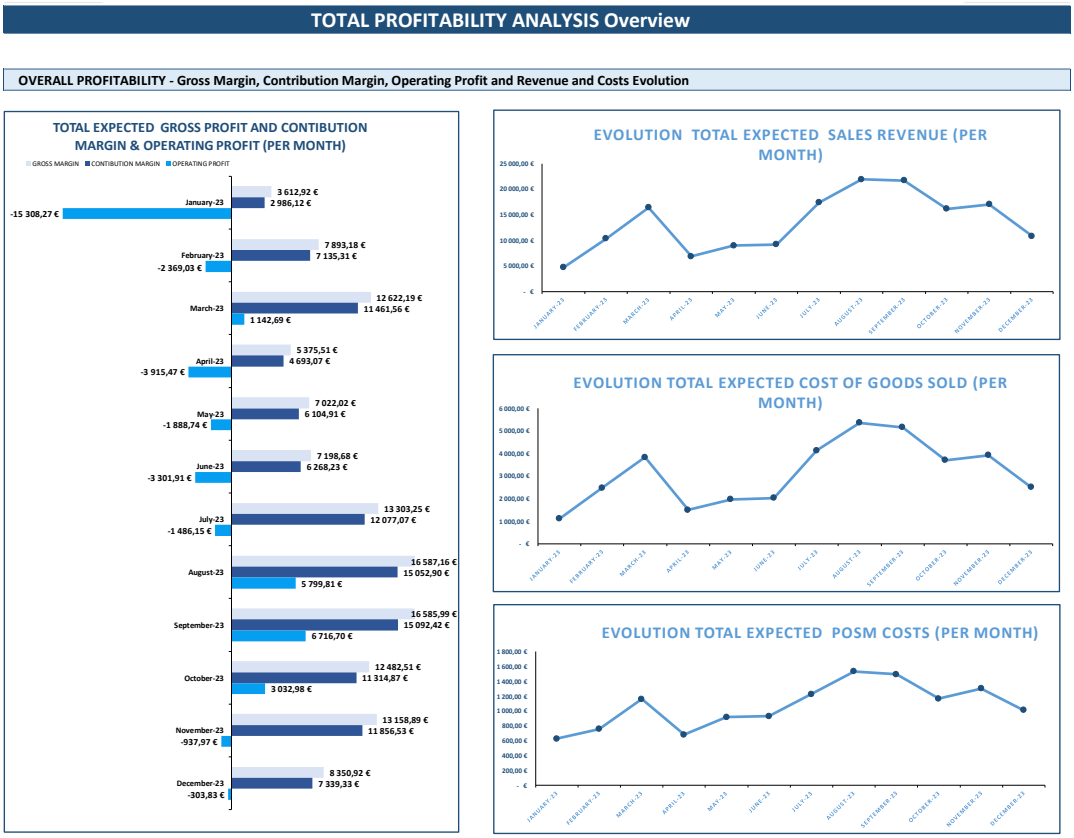
GROSS MARGIN Mosquito	**409,54 €**	**868,90 €**	**1 047,19 €**	**- €**	**408,49 €**	**408,49 €**	**920,80 €**	**765,08 €**	**- €**	**- €**	**- €**	**- €**	**4 828,50 €**

POS RE-INVEST BUDGET	January-23	February-23	March-23	April-23	May-23	June-23	July-23	August-23	September-23	October-23	November-23	December-23	TOTAL YEAR
Budgeted TESTERS Unit Offers	2	4	5	-	2	2	4	4	-	-	-	-	23
Budgeted SAMPLES Unit Offers	22	46	55	-	22	22	49	41	-	-	-	-	257
Budgeted MISLLANEOUS ITEMS Offers	1	1	1	-	1	1	1	1	-	-	-	-	7
POSM Re-Invest %	**13%**	**13%**	**13%**	**13%**	**13%**	**13%**	**13%**	**13%**	**13%**	**13%**	**13%**	**13%**	**13%**
TESTERS OFFERED													
TOTAL Cost of TESTERS Essence	6,12 €	12,24 €	15,30 €	- €	6,12 €	6,12 €	12,24 €	12,24 €	- €	- €	- €	- €	70,38 €
TOTAL Cost of TESTERS Components	8,15 €	16,77 €	20,96 €	- €	8,38 €	8,38 €	16,77 €	16,77 €	- €	- €	- €	- €	96,19 €
TOTAL Cost of TESTERS Manipulation & Fabrication	1,95 €	3,90 €	4,88 €	- €	1,95 €	1,95 €	3,90 €	3,90 €	- €	- €	- €	- €	22,43 €
TOTAL Cost of TESTERS Transport	0,11 €	0,21 €	0,27 €	- €	0,11 €	0,11 €	0,21 €	0,21 €	- €	- €	- €	- €	1,22 €
TOTAL Cost of TESTERS Offered	**16,33 €**	**33,12 €**	**41,40 €**	**- €**	**16,56 €**	**16,56 €**	**33,12 €**	**33,12 €**	**- €**	**- €**	**- €**	**- €**	**190,22 €**
SAMPLES OFFERED													
TOTAL Cost of SAMPLES Essence	1,35 €	2,82 €	3,37 €	- €	1,35 €	1,35 €	3,00 €	2,51 €	- €	- €	- €	- €	15,73 €
TOTAL Cost of SAMPLES Components	3,12 €	6,53 €	7,81 €	- €	3,12 €	3,12 €	6,96 €	5,82 €	- €	- €	- €	- €	36,49 €
TOTAL Cost of SAMPLES Manipulation & Fabrication	12,87 €	26,90 €	32,16 €	- €	12,87 €	12,87 €	28,66 €	23,98 €	- €	- €	- €	- €	150,29 €
TOTAL Cost of SAMPLES Transport	0,66 €	1,38 €	1,65 €	- €	0,66 €	0,66 €	1,47 €	1,23 €	- €	- €	- €	- €	7,71 €
TOTAL Cost of SAMPLES Offered	**18,00 €**	**37,63 €**	**44,99 €**	**- €**	**18,00 €**	**18,00 €**	**40,08 €**	**33,54 €**	**- €**	**- €**	**- €**	**- €**	**210,23 €**
MISCELLANEOUS OFFERED													
TOTAL Cost of MISCELLANEOUS ITEMS Offered	**22,34 €**	**22,34 €**	**22,34 €**	**- €**	**22,34 €**	**22,34 €**	**22,34 €**	**22,34 €**	**- €**	**- €**	**- €**	**- €**	**156,41 €**
TOTAL Cost of POSM Mosquito	**56,67 €**	**93,09 €**	**108,74 €**	**- €**	**56,90 €**	**56,90 €**	**95,55 €**	**89,00 €**	**- €**	**- €**	**- €**	**- €**	**556,85 €**

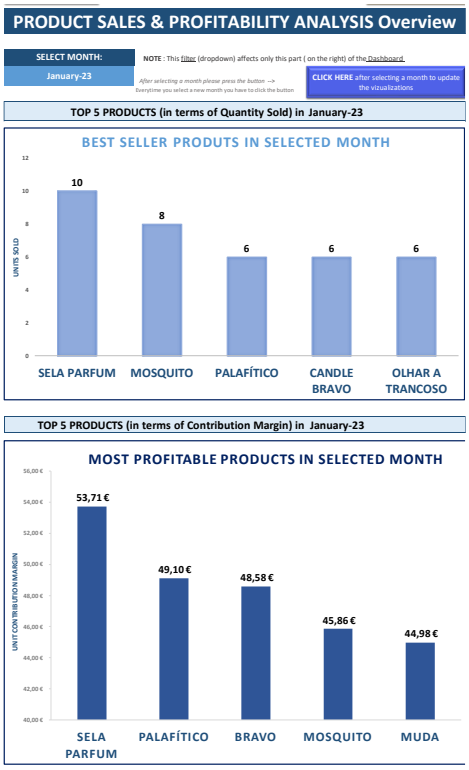
DISTRIBUTION BUDGET	January-23	February-23	March-23	April-23	May-23	June-23	July-23	August-23	September-23	October-23	November-23	December-23	TOTAL YEAR
National Distribution	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
International Distribution	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
TOTAL Cost of Distribution Mosquito	**- €**	**- €**	**- €**	**- €**	**- €**	**- €**	**- €**	**- €**	**- €**	**- €**	**- €**	**- €**	**- €**

CONTRIBUTION MARGIN Mosquito	**352,87 €**	**775,80 €**	**938,45 €**	**- €**	**351,59 €**	**351,59 €**	**825,26 €**	**676,08 €**	**- €**	**- €**	**- €**	**- €**	**4 271,65 €**

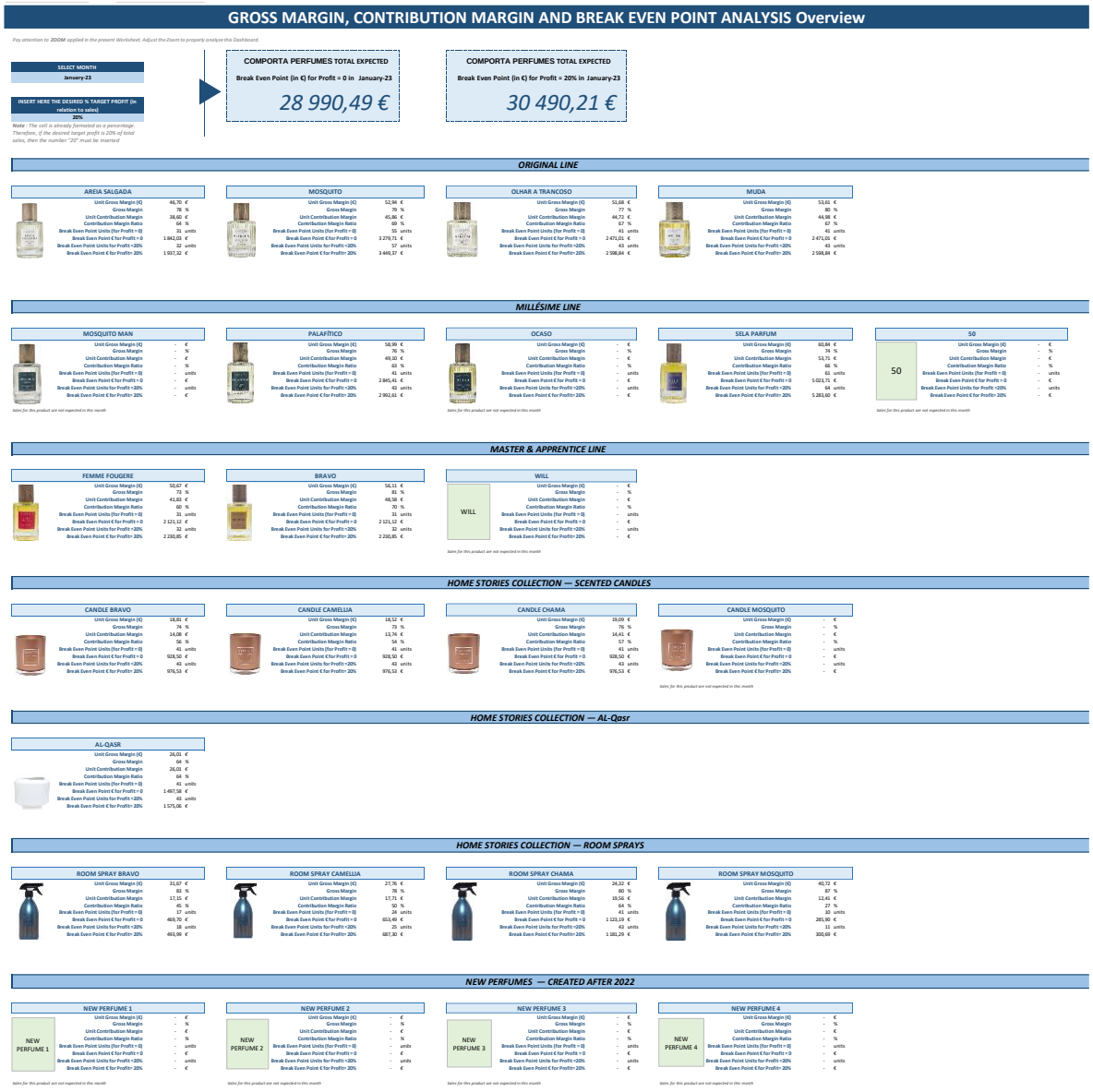
Appendix 8 – Total Profitability Analysis Dashboard



Appendix 9 –Product Sales & Profitability Analysis Dashboard



Appendix 10 – Break-Even Point Analysis Dashboard



Appendix 11 – Break-Even Point Analysis Dashboard for "Areia Salgada"