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 of Economics.

MANAGEMENT ACCOUNTING FIELD LAB:

IMPLEMENTATION OF OPERATING BUDGETS FOR THE HYBRID ORGANIZATION SEMEAR BIPP

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04-01-2021

Abstract

This work project addresses a gap in the literature regarding the use of operating budgets as a management tool for hybrid organizations. The implementation of a management accounting system for *Semear BIPP* indicates that budgets are most effective when used for planning purposes rather than as a motivational tool. Hybrid organizations benefit from accurate cost standards which assist in assessing the profitability of their product sales and help estimate cash outflows. To balance the social and commercial aims of a hybrid organization, price variances need to be primarily analyzed from a qualitative standpoint.

Keywords: Consulting Project, Hybrid Organization, Data Analytics, Management Accounting Systems, Digital Transformation, Microsoft Excel, Budgeting Process, Standard Costs, Variance Analysis

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

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I. Group Part

1. Introduction

Management accounting systems have gone through many changes over the last 150 years. During the industrial era from the mid-19th to early 20th century large enterprises used "extensive management accounting systems to provide information on the efficiency and effectiveness of their decentralized operations" (Kaplan, 1998, p.7). Both Johnson (1992) and Kaplan (1998) are critical of traditional management accounting systems being replaced with financial accounting information in the period after World War II. This information laid the groundwork of controlling managers by setting cost targets and resulted in a sharp decrease in the relevance of the management accounting profession. It presented a shift from the approach embodied during the industrialized era during which companies used both financial and non-financial information for their management accounting systems without imposing target levels on performance or costs measures (Johnson, 1992, p.18-19).

One of the most influential CEOs of that time was Henry Ford, the founder of Ford Motor Company, who once famously said that "business must be run for profit…, else it will die. But when anyone attempts to run a business solely for profit and thinks not at all of the service to the community, then also the business must die, for it no longer has a reason for existence" (Johnson, 1992, p.28). His words still remain as true today as they were back then, particularly in the context of the rise of hybrid organizations, which are defined as "social enterprises that combine the organizational forms of both business and charity" (Battilana et al., 2014, p.397) and pursue a "social mission while engaging in commercial activities in order to generate revenue to sustain their operations" (Gibson, 2013).

The trade-off between social and commercial aims can be observed, for instance, when an organization faces a decrease in sales but decides not to lay off any employees even if that were to make the most economic sense. The balance between achieving the social mission and

aiming to be profitable always needs to be analysed carefully to guarantee the stability of the organization. Battilana et al. introduced the term "Hybrid Organizing" (2014) which explains ways in which hybrid organizations can achieve that healthy balance. For instance, profit-seeking activities should be set up so that they share costs with activities which are performed to achieve the social mission or employees should be hired who can contribute to both the social and the commercial aspects of the organization.

This Work Project recaps a 4-month management accounting consulting project at the hybrid organization *Semear BIPP*, which was created in 2005 by several Portuguese parents who raised children with Intellectual and Development Disabilities (IDD) to promote social inclusion and job placement for children and adults with these kinds of disabilities. Aiming at changing the perception of how society, mainly enterprises, recognize the competences of people with IDD, the organization developed a program called "*Semear – Terra de Oportunidades*" in 2014. Currently, this program is composed of three different business units. The first one is called *Semear Academia* which has existed since the beginning of the program. It was created to provide training sessions to people with IDD to empower them with professional as well as soft skills so that they could effectively join the labor market. A few years later *Semear Mercearia* and *Semear Terra* were connected to the program. Both business units assist *Academia* in giving financial support as well as in achieving the organization's social mission. On the one hand, they are engaged in for-profit operations and their earnings are used to pay expenses for the training programs. On the other hand, they provide a practical stimulus to the students from *Academia* by incorporating them into their operational tasks. Each business unit will be introduced in more detail in the following sub-sections.

1.1. Semear Academia

Individuals with IDD can join three separate training programs which are referred to as degrees. The first degree is called *Academia 1* which is a continuous program and offers general

teachings on a variety of subjects such as History, English, and Math. Students are required to pay a fee to attend the courses. The degree *Academia 2* also charges students a fee which varies based on their family's household income, whereas *Academia 3* does not. As a result, this degree is dependent on a grant from an institution of the Portuguese government called *Instituto de Emprego e Formação Profissional* (IEFP), which covers a portion of the costs incurred, especially direct student expenses for travel and meals.

Both *Academia 2* and *Academia 3* provide more practical training which prepare the students for the job market and give them more autonomy in their professional and personal lives. To achieve this, certified technical and on-the-job courses in the areas of commerce, agriculture and food industry can be taken. In addition, students can choose to attend soft skills training and private coaching sessions. The objective is to teach students to perform routine tasks which are easy to remember and to improve their confidence to clearly communicate with supervisors, so they can provide value to any organization.

Semear Academia collaborates with about 25 businesses in the greater Lisbon area which are willing to employ its students. As of December 2020, *Semear Academia* has helped to integrate more than 37 people with disabilities into the labor market and currently has 50 students signed up in the three degrees.

1.2. Semear Mercearia

This business unit cooks, prepares, and sells gourmet artisanal products, for instance jams, cookies, and olive oils. The products can be grouped into three categories. First, products which are bought from a supplier and sold directly to the consumer without any further processing are labeled 'P1' products. Secondly, 'P2' products are classified as those goods which after being purchased externally are fully fitted with labels, covers and sealing strips before they are sold to the end-consumer. Finally, 'P3' products are cooked in the kitchen with ingredients received through donations or purchased from suppliers and are afterwards fitted

with various materials. Some ingredients are collected from other organizations which would otherwise waste them. Any of these three categories of products can be bought either as individual items or together with other products in bundles referred to as “cabaz” which can be customized according to the client’s preferences. These bundles represent the majority of the sales revenues from *Semear Mercearia*.

Semear Mercearia’s selling proposition involves offering products to companies which are willing to buy them as gifts for their employees for the Christmas holidays. Over the last couple of years roughly 90% of annual sales revenues were generated from sales made in December. The objective of this proposition is to limit uncertainty and more accurately predict production volume. As a result, the management team spends three months - January, February, and March - getting in touch with former as well as potential customers to work out deals for December purchases. All the products sold are produced between the months of April to November and assembled for delivery in December. Furthermore, *Semear Mercearia* operates an online store and from 2021 onwards it plans to start production in January to meet estimated online sales demand for the first three months of the year.

1.3. Semear Terra

The goal of *Semear Terra* is to grow and sell organic vegetables. It guarantees that the production is sustainable and follows a natural process. The organic produce is grown on a 12 hectares (120,000 square meters) plot of land. As the quality of the soil varies by season, only 3.5 hectares can be used at once, as the other land is not suitable for growing produce. However, unused land is available to be rented for children’s birthday parties or corporate workshops.

Five different types of baskets are offered for sale. Three of these include some of the organic vegetables while one features fruits in addition to the vegetables and the fifth consists of eggs and fruits paired with the vegetables (see Appendix 2). Fruits and eggs are bought from external farmers and vary with each basket. The idea behind this strategy is to enhance

community partnerships between farmers as well as to increase the variety of the baskets. The fruits and eggs are always planned to be bought at the same price regardless of the specific type purchased.

In previous years, *Semear Terra* predetermined which vegetables were placed in the baskets for two six-month periods. In the six spring and summer months, all the baskets had the same content of vegetables every four weeks and it followed the same procedure for the fall and winter months. However, due to the fact that the quality and quantity of the actual harvest deviates from the expected one, the planned content of the basket could not be achieved with their own vegetables but had to be bought externally. In order to minimize this effect, the consulting team constructed a model which allows *Semear Terra* to customize the baskets for the consumers according to the actual harvest currently available. In addition, in the summer of 2020, *Semear Terra* started its collaboration with the app "Too Good to Go". App users can purchase at a lower price products which *Semear Terra* has been unable to sell during the expected selling period and are now at risk of being wasted.

To maximize the positive impact of this consulting project, managers of each business unit needed to become accustomed to using technologies more effectively in order to improve the efficiency and decision-making capabilities of their operations. The next section describes how technological change impacts the management accounting profession and what was achieved to assist *Semear BIPP* in improving its technological development.

2. Management Accounting and the Digital Transformation

A Deloitte study from 2019 highlights that "the use of data and analytics to find insights that help organizations become more efficient" (Gurumurthy et al., 2019) is a pivotal step in implementing a successful digital transformation. According to Kaplan (1998) the main goal of management accounting systems is to provide managers with information which they view relevant to make timely, efficient, and effective decisions. Thus, the digital transformation

process and the responsibilities of management accountants are closely linked, and tremendous value can be unlocked when organizations understand the added benefits of becoming more technological savvy and data driven. To further underscore this relationship, the Institute of Management Accountants has updated its 'Management Accounting Competency Framework' to include a 'Technology & Analytics' domain citing that "technology is redefining the role of the management accountant while also significantly changing the business landscape […] at an unprecedented speed" (IMA, 2019).

A paper published in 2020 by the Institute of Management Accountants and Deloitte notes that many organizations still use accounting processes which require a significant amount of manual input. (Gibson et al., 2020). This raises the question as to how automation can be integrated into those processes. Lawson (2020) believes that "repetitive, time-consuming tasks that must be performed consistently yet quickly" are most suited for automation and are a good starting point to deploy new or upgrade existing technologies.

At *Semear BIPP* a multitude of tasks were discovered which had not been automated when the consulting project began even though they were performed on a regular basis. For instance, the management team of *Semear Mercearia* had to repeatedly sift through a Microsoft Excel worksheet to know how many kilograms of each ingredient were required to produce a particular product. The information was not instantly available and is one of many examples of how a lack of automation leads to slower access to data.

Therefore, the objective of this project was to build a management accounting system by creating insightful and highly automated data analytics models in Microsoft Excel. Microsoft Excel was chosen as the technological tool for two key reasons: first, the program has been used in previous years which lead management to acquire a decent knowledge on how to operate it and secondly it is sufficient to fulfill all the objectives of the project without having to purchase a new software and incur additional costs. This decision was made taking into account

Monteiro's (2020) observation that in today's world many businesses cannot "resist the temptation and the hype of buying new technologies" even though the main goal of a busines is to match the IT solutions to its business needs. The following section details how Microsoft Excel was used to set up an automated management accounting system for *Semear BIPP*.

3. The Final Output

The contents of the system were decided upon through a series of interviews and meetings with the management team in the early stages of the project. The objective was to understand the organizational challenges *Semear BIPP* faces in order to define the specific aspects of the project. A costing system, operating budgets and a Balanced Scorecard emerged as the main components of the system. During the project, additional meetings were used to present the designed Microsoft Excel models and clarify any doubts both sides had (see Appendix 3 for a list of the meetings). This led to a fruitful relationship between management and the consulting team and ensured the smooth and accurate execution of the project's objectives.

A Balanced Scorecard was developed for each business unit and *Semear BIPP* as a whole entity in a single Microsoft Excel workbook. This allows management to quickly track if and to what extent performance targets of all business units are being met without switching between multiple files. Both the operating budgets and the costing system are included in the same workbook, but separate ones were created for each business unit. The reason to separate by business unit is based on the fact the business units operate independently and the respective managers only need to use the file which contains the budgets and costing system of the business unit they are leading. Additionally, automated invoice registers were built to assist the management accounting system. One was created for each business unit in a separate Microsoft Excel workbook and is intended to be used to record each operational transaction which occurs throughout the year. Aside from the three invoice register workbooks, each workbook consists

of databases, engines, and dashboards. In the following sub-sections these elements are explained in more detail before moving on to describe the set-up of the invoice registers.

3.1. Databases

At the beginning of the consulting project, *Semear BIPP* provided the authors with its original Microsoft Excel workbooks which contained sales budget data, actual overhead costs, payroll expenses and product overviews. All the values were hardcoded, which means that they were not linked to a structured database but rather were inserted directly into a database which was simultaneously used as the analysis tool. This structure made it infeasible to construct automated data analytics models because in the case that a value had to be changed, the user would overwrite the previous value with the new one making any analysis and comparison between values over time impossible. In order to tackle this problem, the databases were separated from the analysis worksheets. Each set of values, whether the selling price of a product or the salaries of the employees, was stored in a distinct database which included a time dimension. Every data entry was linked to the week, month and year in which it is was made, which resulted in a management account system which gave the user complete access to historical, present and future data, which is essential for sound operational decision-making.

Without the proper usage of each database, the various interactive dashboards would not return the correct up-to date information. In order to assure accuracy, it was of the upmost importance that the data entries follow the guidelines established in the “ReadMe” instructions visible in the first worksheet of each the workbook. If information in the databases was missing or data entries were made in the wrong cell(s), the data displayed in the automated models would be inaccurate and misleading. The user might not know about this misfortune, so it is crucial that the person responsible for the data entries works with great care, patience, and diligence. Otherwise, the analysis made by management would be meaningless as the results observed in the dashboards would be based on false or partially incorrect data.

A database is also beneficial for the purpose of data storage. As the format of all databases remains unchanged, they precisely reflect each data entry as it was originally made. As a result, the databases provide historical information which can be accessed at any point in time. If for instance, the organization is faced with legal or regulatory compliance issues in the future, the user can obtain the data in a particular database, without the need to spend time trawling through paperwork or unorganized Microsoft Excel worksheets.

3.2. Engines

In order for the databases to be converted into insightful, clean and straight to the point dashboards, many calculations had to be performed. The user does not need to see or interact with these calculations in order to view an accurate dashboard. Instead, it is important that the calculations cannot be edited ad-hoc, deleted, or otherwise compromised by anybody. Therefore, all the calculations were hidden from the view of the user. This was a necessary step to guarantee that the models work properly and will not display any error messages.

3.3. Dashboards

The final results of the calculations performed in the engine can be accessed in the various dashboards. The dashboards are fully automated data analytics models which update 100% automatically once new data entries have been made into a database which the dashboard is linked to. One advantage of the dashboards is the user's ability to access different results within one dashboard. In Microsoft Excel this can be done by applying data validation, a service which requires little human interaction (Appendix 4). In practice, similarly to a survey, the user only needs to select the desired choice from a list of options. The dashboard will then display the resulting information instantaneously and can perform this task for all options in the list as many times as necessary in a few seconds.

With the development of automated dashboards, management has instant access to insightful data, which can be used to plan, control, measure, and analyze operations. It is up to

the user to decide which information should appear on the screen. Any decision-maker can now draw conclusions from data which is guaranteed to be timely and accurate.

3.4. Invoice Registers

The invoice registers were established to smoothen the process of recording actual operational data throughout the year. This includes purchases made for direct materials, the production and selling of products as well as the registering students to classes. The entries made in the register were automatically posted into a separate worksheet to form a database. This data was then used to perform automated calculations in another worksheet which returned all the results needed to perform certain analysis in the other workbooks, for instance calculating variances or the evaluation of performance measures. To guarantee the timely and accurate transfer of those results from the invoice register workbooks to the other workbooks, the user needs to copy the results to their appropriate databases. This process is defined in the 'ReadMe' of the invoice registers. The decision to 'outsource' the three invoice registers into separate Excel workbooks was made on the premise that all the invoice register workbooks contain Visual Basic Applications. This results in large file sizes and would make all the calculations in the engines of the other workbooks lengthy and difficult to process. For larger organizations with bigger cloud systems, the seven Excel workbooks could have been combined into one.

II. Individual Part

4. An Introduction to Budgets

The necessity of budgets needs to be proven time and time again as their effectiveness is under constant scrutiny. Lidia (2014) notes that "budgets are among the most controversial managerial tools". Among the disadvantages of implementing budgets are the amount of time the budgeting process takes and the reduced flexibility which comes with tying the

organization's operations to the budget (Neely et al., 2003). On the other hand, budgets can motivate managers to achieve budgeted targets (Lidia, 2014) and serve as a tool to plan operations as well as control and evaluate performance (Drury, 2015). With academic textbooks putting great emphasis on describing the methodologies to carry out the budgeting process in large organizations, more real-world business cases are required to better understand the practical requirements of setting up budgets for small hybrid organizations. Otley et al. (1995) remarked that research on management control tools such as budgets only centers around traditional organizations and neglects new types of organizational structures. To address this deficit, this work project summarize the process of implementing operating budgets at *Semear BIPP*, the hybrid organization introduced at the beginning of the work project.

5. The Observed Situation

The urgent need to develop clear and insightful operating budgets emerged from the early conversations with the management team of *Semear BIPP*. In previous years, the business units had only prepared an annual sales as well as labor budget. Monthly expenses for direct materials were estimated based on the given sales numbers and included within the sales budget rather than a separate budget. At first sight, this led to confusion as it was complicated to understand why the costs were as high as indicated. They were not related to a source within Microsoft Excel such as a database with information about the costs incurred for buying the direct materials. It can be surmised that budgeted data was calculated in people's heads rather than through conceivable calculations steps within Microsoft Excel.

Therefore, *Semear BIPP* needed a comprehensible budgeting process which was constructed in a way that any new manager could understand and easily draw conclusions from. The current CFO for instance, who was hired at about the same time as when this consulting project started, had significant difficulty to understand the logic of the two budgets. In addition,

the absence of purchase, overhead and administrative budgets made her job even more complicated with regards to understanding the estimated revenues and expenses of the organization. Her main objective was to build a coherent operating profit budget in order to predict and analyze cash flows and make more reasonable capital investment and other business decisions. This aim is justified as Johnson (1992, p.122) emphasizes the importance of cash flow management by explaining that "nobody likes surprises, at least not the type that lead a company toward bankruptcy. To avoid preventable mistakes companies must have sound cash budgeting and cash flow tracking systems".

From a technological standpoint, the absence of a time dimension was the main issue of the budgeting process. Despite the fact that the sales and labor budget were built in a Microsoft Excel worksheet, it lacked any kind of dynamic component. As a matter of fact, budgeted monthly sales numbers were simply overwritten by actual monthly sales results as the year passed by (see Appendix 5 for an example of *Semear Terra's* 2020 sales budget). This left no room for a variance analysis at the end of year because "variances [are] the differences between budgeted, planned, or standard amounts and the actual amounts incurred or sold" (VanZante, 2007). Without any automated analysis and historical comparisons available, other valuable insights which can be derived from budgets and variances, as for instance the development of a flexible pricing strategy, the withdrawal of a product from the marketplace or the adjustment of next year's production schedule were not possible.

6. The Proposed Solution

This consulting project did not follow a 'one size fits all' procedure outlined in academic textbooks but considered the specific needs of each business unit of *Semear BIPP* to develop a customized budgeting system within Microsoft Excel. The following sections highlight the primary components of the budgeting system and explain their relevance.

6.1. Flexibility and the budget period

In the past the business units prepared budgets annually for each month without changing the monthly estimates throughout the year. This approach has been criticized by Drury (2015, p. 373) who notes that "the preparation of budgets on an annual basis […] is too rigid and ties a company to a 12-month commitment, which can be risky because the budget is based on uncertain forecasts". The Covid-19 pandemic has underscored this disadvantage as the budgeted numbers from the start of the year were no longer representative for the months following the pandemic. Especially in times like this, flexibility is a valuable component for organizations. The ability to adjust budgeted values for the upcoming month at the end of the previous month allows *Semear BIPP* to forecast business operations in line with current circumstances. The pandemic for instance, created high demand for the baskets from *Semear Terra*. As this could have not been taken into account when the budget was initially prepared, the favorable variances arising from the increased sales quantities would have been inappropriate. After all, the initial sales estimates were made without the knowledge of a global health crisis. With the updated budget, the variances are actually meaningful as they are calculated based on realistic sales expectations. In summary, a budget ought not to be changed during the month but adjusting it before the month starts is advisable when current circumstances have changed considerably.

Governments impact budgets as their policies affect the revenues and costs of an organization. During the Covid-19 pandemic, the German government tried to stimulate the economy by lowering the value added tax from 19% to 16% (Rödl&Partner, 2020). This example provides evidence why it is crucial to include databases in the system, which provide the user the possibility to adjust to changes over time (Appendix 6). The advantage of this flexibility is that budgets will be updated instantaneously taking into account the new circumstance.

6.2. Standard costs

One major reason organizations use standard costs is “to assist in setting budgets” (Drury, 1992, p.14) and to provide “a prediction for future costs which can be used for decision-making purposes” (Drury, 1992, p.14). The ‘Ingredient Purchase Budget’ in Appendix 7 indicates how standard costs convert budgeted quantities of materials into total “monetary requirements for [those] materials” (Drury, 1992, p.14).

Standard costs had previously not been used by *Semear BIPP*. Consequently, management didn’t know whether products were sold at a gain and if so at what ratio. Therefore, the management accounting system includes a basket profit calculator for both *Semear Terra* and *Semear Mercearia*. This is a crucial tool to ensure that both business units improve their likelihood of becoming profitable entities. The user can select a multitude of products to be placed into the basket and the model will return the total respective product costs. This value is derived by summing up standard costs for direct materials as well as the allocated overhead costs. In addition, the contribution margin is calculated which only includes standard costs including those of variable labor if applicable (Appendix 8).

For *Semear Mercearia*, the breakeven selling price is calculated which indicates the lowest possible price at which to sell the product. In addition, the model considers the impact of cash or in-kind donations. It is necessary to maintain friendly relationships with doners, especially those who regularly contribute to the organization. A common practice within *Semear Mercearia* has been to reward those doners with specialty discounts applied to the regular selling price. This routine should definitely be kept in place as it highlights the social mission of the organization and benefits those who contribute to the social goal. For that reason, an optional field has been included in the model which gives the user the opportunity to apply an appropriate discount percentage to the total selling price (Appendix 9). Besides this option, no sale should be made at a loss regardless of how much any donor pledges to the organization.

Rather, it is important to explain to the donors the necessity of selling products at a positive contribution margin in order to further increase the social impact of the organization which is supported by the donors through their contribution. Teson (2018) notes that some donors do not expect an incentive for their charitable giving but rather do so because they believe in the good purpose of the donation. Therefore, discounts might not always be needed to retain donors, but it has been one of the priorities of *Semears's* management to include such an option in the system. Additionally, the discount option can also be applied to regular clients.

As far as *Semear Terra* is concerned, the break-even point is highlighted by the budgeted selling price of the basket. The user can choose the composition of the basket based on all the crops which are currently available to be sold and stored in the warehouse. The model indicates the number of kilograms left to be sold based on the amount harvested and already sold. This provides the sales representative responsible with all the necessary information to compose customized baskets without having to check which products are currently in the warehouse. Furthermore, the user can observe how many kilograms of vegetables have already been placed in the basket. As the current standard amount of vegetables to be placed in the basket (see Appendix 2 for reference) is visible on the dashboard, the salesperson precisely knows the amount which can still be added. This provides a significant added value to *Semear Terra*, as it is now capable of selling customized baskets based on client's demand.

It is important to take into consideration, that in order for selling decisions to be legitimate, standards need to reflect accurate costs as precisely as possible. If the user interacts with the basket profit calculator and observes standard costs which are 20% below purchase costs of previous months, it will result in an incorrect break-even selling price. Therefore it is vital that "standards ought to be frequently reviewed and, where appropriate, updated in order to minimize variances being reported which are due to standards being out of date" (Drury, 1992, p.124). Standards will rarely be 100% accurate but the closer they are to reality, the more

meaningful will be the analysis. In order to support the possibility of updating standards, a model was constructed which contains information about offers from suppliers.

Both *Semear Mercearia* and *Semear Terra* frequently ask multiple suppliers to provide an offer for an ingredient, material, seed or plant. The unit or per kg prices offered reflect current market standards and often one of the offers will be accepted. Consequently, adjusting cost standards based on the offers made by suppliers ensures the most accurate and timely standards. In practice, any offer made from a supplier can be entered into the 'Supplier Database'. The entries into the database are used to build the automated 'Supplier Analysis' worksheet in which the user can filter all the offers from a particular item. This information lays the groundwork of a potential update of a standard cost. If for instance, the offers made by various suppliers for sugar have increased in price by 10% on average over the last few months, a change in the standard cost of sugar is justified and even necessary. Otherwise "any investigation of price variances will indicate a general change in market prices rather than any efficiencies or inefficiencies in acquiring the resources" (Drury, 1992, p.124). Furthermore, any inflationary and deflationary period will be reflected in the standards if they are based on offers made by suppliers.

To summarize, standard costs are valuable for both *Semear Mercearia* and *Semear Terra* as they assist in providing instantaneous information about the profitability of basket sales. Furthermore, standard costs help indicate total expected cash outflows in the purchase budgets.

The second major purpose of standard costs is to "act as a control device" (Drury, 1992, p.14) and to "provide a challenging target which individuals are motivated to achieve" (Drury, 1992, p.14). The next section provides an introduction to price variances to help explain the purpose of operation control and clarifies why a "conflict between the planning and

performance evaluation roles" (Drury, 2015, p.373) exists when developing operational budgets.

6.3. Direct Material Price Variances

A fundamental aspect of variance analysis is that "the original budget must be adjusted to the actual level of activity" (Drury, 1992, p.26) in order to avoid a comparison between "actual costs at one activity level with budgeted costs at another level of activity" (Drury, 1992, p.26). Applying this concept is referred to as flexible budgeting. One example to illustrate this method is provided by explaining the practical usage of the 'Ingredient Purchase Budget' dashboard developed for *Semear Mercearia*. The 'budgeted kilogram needed for production' value is based on how many products which use this ingredient are budgeted to be produced multiplied by the standard quantity including losses of each product. As explained earlier and visible in Appendix 7, the standard cost per kg is used to calculate the total budgeted cost of the ingredient. However, in reality, the actual quantity purchased will most likely deviate from the budgeted quantity. Therefore, the total actual cost might be either substantially lower or higher than the budget total purchase cost, even if the weighted actual average cost at which the product was purchased was equal to the standard cost of that month. Hence, the actual price variance was zero as the difference in total expense only stemmed from the difference in quantity not in the unit cost. The total price variance is the unit price variance multiplied by the actual kg purchased. This information tells management how much money was actually lost/gained in the actual purchase compared to the budgeted standard.

The literature highlights that in large organizations variances are used to control and evaluate the performance of the responsible purchase manager or employee. As mentioned before, executives can set challenging targets to improve an employee's motivation which is especially true "if people know in advance that their performance is going to be judged against a standard" (Drury, 1992, p.6).

This creates a dichotomy crystallized by Drury (2015, p.373) who argues that "demanding budgets […] may be appropriate to motivate maximum performance, but they are unsuitable for planning purposes. For these, a budget should be set based on easier and more realistic targets that are expected to be met". It raises the question whether such an approach is suitable for *Semear BIPP*. The project has led to the decision that in order to ensure that budgets are used so they are suitable for the organization, they should be developed only for planning and not for motivational purposes. This decision was reached due to two main considerations.

First, given that *Semear BIPP* is a hybrid organization, using standards as targets to determine the performance of the responsible employee does not align with the objective of the organization of combining social with commercial aspects. If standards are lower than they would reasonably be based on offers from suppliers and variances are used to evaluate performance, employees will feel pressured to accept the cheapest offer. Rather, the individual should seek to accept the best offer and make that decision based on not merely quantitative but rather qualitative considerations taking into account the organization's mission.

Second, the literature has identified many negative consequences when employees are focused on achieving positive price variances because standards are used as targets. Johnson (1992, p.48) for instance argued that it will lead "department supervisors [..] to keep machines and people busy producing output, regardless of market demand, in order to minimize standard cost variances. By using such targets […] financially oriented companies often cause unnecessary inventories of finished and in-process merchandise to accumulate". A similar observation has been made by Drury (1992, p.167) who notes that "if purchasing price variances are used to evaluate the performance of purchasing management it is likely that the purchasing manager will be motivated to focus entirely on obtaining materials at the lowest possible prices even if it results in […] large quantity purchases thus resulting in higher inventories". As both *Semear Mercearia* and *Semear Terra* have limited storage capabilities, materials should be

purchased when they are needed to avoid excessive inventory levels, even if it results in unfavorable price variances.

The price variances arising in the budget constructed for planning purposes should "trigger a study that will uncover the reason for the […] variance" (Kaplan, 1998, p.443) and lead management to elaborate which "course of action should be taken in light of the variance" (Kaplan, 1998, p.444). This is an important step, because a qualitative study will bring to light whether a variance was unfavorable for any of the reasons mentioned above as for instance to avoid inventory to accumulate beyond available capacity. Further, it improves the accurate planning of cost estimates for the next budget period as standards can be adopted not only based on offers from suppliers but also if price variances are either significantly favorable or unfavorable in a certain month. This is a valuable practice as it is unfeasible for *Semear BIPP* to receive offers for all materials every month.

In conclusion, *Semear Mercearia* and *Semear Terra* should use standard costs to develop a budget which serves the function of planning the organization's cash outflows. It is unadvisable to construct another budget for motivational purposes, as it risks employees putting a disproportionate focus on achieving favorable variances without taking into account the potential drawbacks of such behavior. Price variances are best used when they are analyzed from a qualitative viewpoint.

6.4. Direct Material Usage Variances

Usage variances indicate how efficient the materials used in the production process were and are calculated by subtracting the actual from the estimated units needed to manufacture a product. The production process of *Semear Mercearia* is simple which makes large usage variances very unlikely. Applying labels or other materials to products will not account for any inefficiencies, whereas the cooking procedure will result in some even if they are unintended.

As each product is cooked according to a recipe, higher unit quantities will never be required on purpose. However, it is plausible that while the products are cooked ingredients are accidently wasted. In addition, the cooked product might not meet qualitative standards and needs to be cooked again. Any of these instances are referred to as losses in the production process because they require using additional ingredient quantities to those established in the recipe.

It is impossible to oversee the cooking process of each product and observe and estimate the losses. Rather, a standard loss percentage needs to be indicated for every ingredient of each product which can be adjusted on a monthly basis (Appendix 10). To come up with a reasonable loss percentage, employee input is required. The chef and the cooking assistant are the two employees involved in the cooking process and have the best knowledge of it. Therefore, management should empower them and by asking for what they believe to be the correct percentages. This method has been championed by Johnson (1992) who argued that an empowered work force is superior to a remote-control management team because if processes are analyzed from the bottom-up through employees rather than imposed from the top-down by management, the results will be more accurate.

Integrating this approach into a hybrid organization is the ideal case and *Semear BIPP* will be an attractive employer for the years to come if employees are given the opportunity to participate in the development of management accounting information. In effect, the loss percentage is added to the standard quantities indicated in the recipe and thus affects the budgeted kilogram needed for production and the total budgeted cost of each ingredient.

For *Semear Terra*, the material usage variance is of substantial value. The seeds and plants which are planted in order to grow a certain amount of finished crops, will be more or less efficient and lead to a harvested amount which deviates from the one originally estimated.

In the agricultural sector, the quality of the soil and the weather play a significant role in how well crops grow in terms of both quantity and quality. As a result, even if the number of seeds or plants used is the same every time a product is grown, the output of the various crops will be different. The efficiency therefore either increases or decreases as less or more seeds/plants are needed in order to produce the number of kilograms expected to be harvested. This is the equivalent to a manufacturer who requires either a higher or lower number of unit quantities to produce one unit of a particular product indicated by the material usage variance.

In order for management to keep track of these results, a historical dashboard has been built in the worksheet "Crop Efficiency" which highlights the usage variances of each crop on a total kilogram and a kilogram per seed/plant basis. This information is crucial as it assists in planning which vegetables are most efficient to be grown at each time of the year. Further, it helps apply a probable loss percentage to each crop which will be grown in the future making planning more realistic and providing management with the knowledge about how many kilograms of each crop are expected to be available for sale in future weeks and months ahead (Appendix 11). After manually inserting budgeted unit numbers the model provides information about how many kilograms of vegetables these estimates would result in, allowing the user to compare it to the expected amount to be harvested (Appendix 12). This enables *Semear Terra* to provide better insights to clients about whether customized basket orders can be fulfilled. In addition, the user can make more accurate sales volume estimates for the five baskets.

6.5. Budgeting for Semear Academia

For *Semear Academia*, the majority of expenses associated with providing courses are direct labor costs which arise from hiring external coaches on a per hour basis. The annual budget was developed on a per course basis in order to simplify the planning of the courses and help understand all the cash flows associated with the course. To reach a total overview of all

the expenses, indirect labor as well as other manufacturing overhead estimates were included. In addition, student expenses from ‘Academia 3’ and student fees from ‘Academia 1’ and ‘Academia 2’ were part of the course budget representing the only type of revenue for the business unit (see Appendix 13 for the annual budget of a course).

The IEFP grant which *Semear Academia* receives for all courses taught within ‘Academia 3’, received special notice for the construction of the budgeting process. Previously, management did not know how much money to expect from the grant and why and to what extent the actual sum received deviated from the budgeted value. Therefore, two worksheet were constructed, one which highlights the budgeted and the other the actual amount of the grant. Furthermore, it indicates how much money *Semear Academia* was expected to pay and actually paid because the grant does not cover all the costs. The most important metric the dashboards display is the total volume of teaching. With this information management can comprehend why the budgeted and actual values of the grant differ and what actions need to be taken to make the course more attractive to students. The teaching volume is the sum of the hourly class attendance for each student of the course. The budgeted value assumes that all students registered for the course are expected to attend each activity and lesson of the course. This would result in the same actual and budgeted value of the grant and also represent the best-case scenario in which the value of the grant is maximized. As actual class attendance is most likely lower, the actual value of the grant will be below the budgeted value. Therefore, a variance analysis dashboard was developed which indicates the differences in expenses on a per teaching volume basis. This information expresses how the actual hourly costs per student diverge the most from the budgeted costs when the total volume of teaching had the highest unfavorable variance (Appendix 14). It underscores the importance of trying to maximize the total volume of teaching by offering great courses which students are existed about attending.

In addition, a percentage value indicates the variance in total class attendance with 100% being the budgeted amount.

In conclusion, the objective for the budgeting process of *Semear Academia* was to establish a detailed overview which highlighted all data needed to plan cash flows for each course and estimate the value of the grant. Furthermore, it was important to indicate how the teaching volume affected total costs per student and how much money is to be received by the grant.

7. Future Research Possibilities and Conclusion

Microsoft Excel has been a useful tool for implementing this management accounting system and it would be helpful to see whether other platforms could be used to further increase the impact of the system for the organization. For instance, future consulting groups could use Power BI or Tableau to turn descriptive budgetary data into insightful charts and other data visualization tools. In addition it would be of significant interest to know whether *Semear BIPP* or other hybrid organizations could benefit from a variance analysis which focuses on both the annual budget period as well as the monthly one. For instance, the annual variances would indicate the impact the Covid-19 pandemic had, and the monthly variances would show how based on the changed circumstances actual values deviate from the monthly budgeted values.

The implementation of operating budgets through this work project allowed *Semears*'s management to access budgeted data from a previous, present or future year in coherent automated dashboards. This data was integrated into several models which assist *Semears*'s management in making wise and profitable choices for the composition and sale of baskets. Further, price and efficiency variances help in updating standards and loss percentages to improve the accuracy of the planning for future budget periods.

III. References

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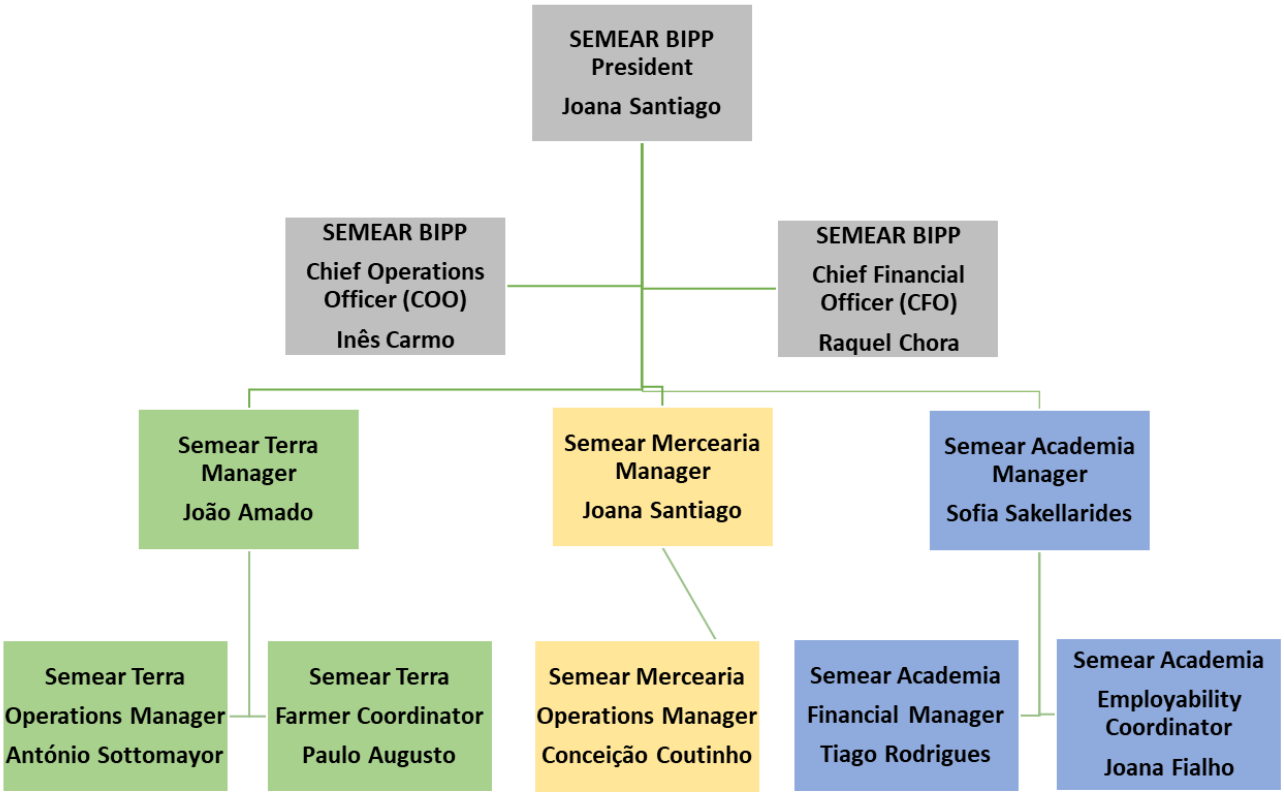
IV. Appendixes

Appendix 1. Organization Chart



Appendix 2. Product Overview Semear Terra

Baskets	Start Date	End Date	Vegetables	Fruits	Eggs
Cabaz - Normal Size Solidary	01.01.2020	-	6.0 kg	0.0 kg	0.0 kg
Cabaz - Normal Size	01.01.2020	-	6.0 kg	0.0 kg	0.0 kg
Cabaz - Familiar Size	01.01.2020	-	8.0 kg	0.0 kg	0.0 kg
Cabaz - Semear + Fruit Basket	01.01.2020	-	8.0 kg	2.0 kg	0.0 kg
Cabaz - Semear Home Basket	01.01.2020	-	8.0 kg	2.0 kg	1.0 kg

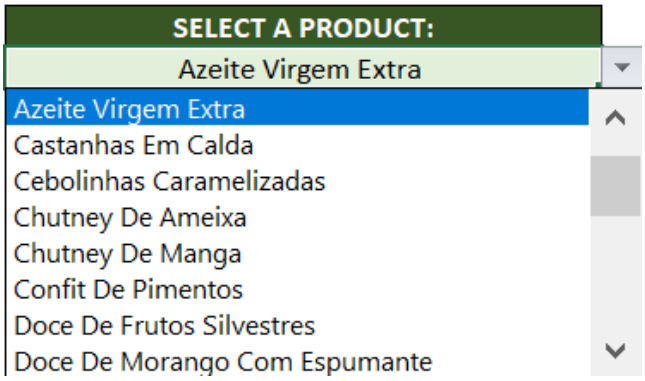
Appendix 3. List of Meetings

Date	Duration (minutes)	Topic	Type	Semear	Nova SBE
28/05/2020	90	Thesis Kick-Off	Online Meeting	Joana Santiago – Semear BIPP President Inês Carmo – COO Helena Estrela - Former CFO	Johan Bietmann - Consultant Nuno Henriques - Consultant Vinicius Bueno - Consultant Marta Almeida - Project

					Advisor Inês Pereira – Leapfrog Program Team Joana Costa – Leapfrog Program Team
08/06/2020	120	Semear Overview	Site Meeting - Semear Academia	Joana Santiago – Semear BIPP President Inês Carmo – COO Helena Estrela - Former CFO	Nuno Henriques - Consultant Vinicius Bueno - Consultant Marta Almeida - Project Advisor
07/07/2020	70	Semear Terra	Site Meeting - Semear Terra	Joana Santiago - President Inês Carmo – COO Paulo Augusto – Farmer Coordinator	Nuno Henriques - Consultant Vinicius Bueno - Consultant
29/09/2020	80	Semear Terra	Online Meeting	João Amado - Semear Terra Manager António Sottomayor – Semear Terra Operations Manager Raquel Chora – CFO	Johan Bietmann - Consultant Nuno Henriques - Consultant Vinicius Bueno - Consultant
07/10/2020	160	Semear Terra	Site Visit - Semear Terra	João Amado - Semear Terra Manager António Sottomayor – Operations Manager Raquel Chora – CFO	Johan Bietmann - Consultant Nuno Henriques - Consultant Vinicius Bueno - Consultant
08/10/2020	160	Semear Academia	Site Meeting - Semear Academia	Raquel Chora – CFO Tiago Rodrigues – Semear Academia Financial Manager	Johan Bietmann - Consultant Nuno Henriques - Consultant Vinicius Bueno - Consultant
15/10/2020	180	Visit to Mercearia Warehouse	Site Visit - Semear Mercearia	Conceição Coutinho – Semear Mercearia Operations Manager Joana Santiago – Semear Mercearia Manager Raquel Chora – CFO	Johan Bietmann - Consultant Nuno Henriques - Consultant
16/10/2020	60	Accountant Topics	Site Meeting - Accountant Office	Raquel Chora – CFO Teresa Madeira - Semear BIPP Accountant	Nuno Henriques - Consultant Vinicius Bueno - Consultant
27/10/2020	120	Midterm Presentation	Online Meeting	Joana Santiago – Semear BIPP President Inês Carmo – Chief Operations Officer Raquel Chora – Chief Financial Officer	Johan Bietmann - Consultant Nuno Henriques - Consultant Vinicius Bueno - Consultant Marta Almeida - Project Advisor Inês Pereira – Leapfrog Program Team Joana Costa – Leapfrog Program Team

27/10/2020	170	Mercearia - Activities Average Time	Online Meeting	Conceição Coutinho – Semear Mercearia Operations Manager	Nuno Henriques - Consultant Vinicius Bueno - Consultant
30/10/2020	120	Academia - Grants	Online Meeting	Joana Santiago – Semear BIPP President Inês Carmo - COO Raquel Chora - CFO Sofia Sakellarides – Semear Academia Manager Tiago Rodrigues – Semear Academia Financial Manager Joana Fialho – Semear Academia Employability Coordinator	Johan Bietmann - Consultant Nuno Henriques - Consultant Vinicius Bueno - Consultant
05/11/2020	60	Academia - Grants	Online Meeting	Raquel Chora - CFO Tiago Rodrigues – Semear Academia Financial Manager	Nuno Henriques - Consultant Vinicius Bueno - Consultant
09/11/2020	120	Academia Model Presentation	Online Meeting	Joana Santiago – Semear BIPP President Inês Carmo - COO Raquel Chora - CFO Tiago Rodrigues – Semear Academia Financial Manager Joana Fialho – Semear Academia Employability Coordinator	Johan Bietmann - Consultant Nuno Henriques - Consultant Vinicius Bueno - Consultant
12/11/2020	30	Academia Budget	Online Meeting	Raquel Chora - CFO	Johan Bietmann - Consultant Nuno Henriques - Consultant Vinicius Bueno - Consultant
23/11/2020	120	Academia and Mercearia Budget	Online Meeting	Raquel Chora - CFO Joana Santiago – Semear BIPP President	Johan Bietmann - Consultant Nuno Henriques - Consultant Vinicius Bueno - Consultant
03/12/2020	90	Strategic Plan	Online Meeting	Raquel Chora - CFO Joana Santiago – BIPP President	Nuno Henriques - Consultant Vinicius Bueno - Consultant

Appendix 4. Data Validation



Appendix 5. 2020 Sales Budget Semear Terra

SEMEAR TERRA	Jan-20	Feb-20	Mar-20	Apr-20	Mai-20	Jun-20	Total 1º semestre	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
	actual	actual	actual	actual	actual	actual	actual	actual	actual	actual	budget	budget	budget
Réditos													
Total Revenues (71 + 72)	3,903.77 €	3,553.14 €	7,110.89 €	11,566.09 €	3,485.72 €	5,939.32 €	33,058.93 €	21,968.59 €	4,599.84 €	15,855.56 €	10,810.00 €	13,560.00 €	13,560.00 €

Appendix 6. VAT Database (Semear Terra)

Baskets	Start Date	End Date	VAT
Cabaz - Normal Size Solidary	jan.20	-	6%
Cabaz - Normal Size	jan.20	-	6%
Cabaz - Familiar Size	jan.20	-	6%
Cabaz - Semear + Fruit Basket	jan.20	-	6%
Cabaz - Semear Home Basket	jan.20	-	6%

Appendix 7. Ingredient Purchase Budget

	jan. 21	fev. 21	mar. 21	abr. 21
Budgeted Kg Needed for Production	6.157 kg	5.53 kg	5.03 kg	31.28 kg
Budgeted Standard Cost per Kg	0.50 €	0.50 €	0.50 €	0.50 €
Total Budgeted Cost	**3.08 €**	**2.76 €**	**2.51 €**	**15.64 €**

Appendix 8. Contribution Margin and Profit of Baskets Semear Mercearia

Sum of Budgeted Unit Sales Prices W/O VAT:	35.93 €
Sum of Budgeted Unit Standard Costs:	24.00 €
Budgeted Contribution Margin per Cabaz:	11.92 €
Contribution Margin Ratio per Cabaz:	33%
Budgeted Total Contribution Margin:	238.47 €

Sum of Budgeted Unit Sales Prices W/O VAT:	35.93 €
Sum of Budgeted Unit Product Costs:	31.73 €
Budgeted Profit per Cabaz:	4.20 €
Profit Ratio per Cabaz:	12%
Budgeted Total Profit:	83.96 €

Appendix 9. Basket Profit Calculator including Discount Option Semear Mercearia

CALCULATOR			
Break Even Discount %:	11.69%	Type the Discount %:	10%
Break Even Selling Price:	39.02 €	Selling Price:	39.77 €
Selling Price W/O VAT:	32.33 €	Total Sales Revenue:	646.65 €
Contribution Margin per Cabaz:	20.41 €	Total Contribution Margin:	408.19 €
Profit per Cabaz:	0.61 €	Total Profit:	12.11 €

Contribution Margin Ratio per Cabaz:	Profit Ratio per Cabaz:
57%	2%

Appendix 10. Standard Losses for Products and their Ingredients of Semear Mercearia

Ingredients		jan. 21	fev. 21	mar. 21	abr. 21	mai. 21	jun. 21	jul. 21	ago. 21	set. 21	out. 21	nov. 21	dez. 21
		1 2021	2 2021	3 2021	4 2021	5 2021	6 2021	7 2021	8 2021	9 2021	10 2021	11 2021	12 2021
Azeite Aromático Para Carne	Azeite Virgem Extra	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Azeite Aromático Para Carne	Alecrim Fresco	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Azeite Aromático Para Carne	Alho Dentes C/ Casca	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Azeite Aromático Para Carne	Pimenta Preta Grão	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Azeite Aromático Para Salada	Azeite Virgem Extra	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Azeite Aromático Para Salada	Oregãos Molho	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Azeite Aromático Para Salada	Salsa Folhas Secas	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Azeite Aromático Para Salada	Pimenta Rosa Grão	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Azeite Virgem Extra	Azeite Virgem Extra	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Castanhas Em Calda	Castanhas Congeladas	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Castanhas Em Calda	Açúcar	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Castanhas Em Calda	Vinho Do Porto	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Castanhas Em Calda	Laranja	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Castanhas Em Calda	Sal Marinho Grosso	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Castanhas Em Calda	Cravinho	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%

Appendix 11. Sellable Products and respective kg available for indicated week

Start Date of Week (Monday)	End Date of Week (Sunday)
28.12.2020	03.01.2021

Sellable Products	Kg Available for sale
Alface Iceberg	171.0 kg
Beterraba	257.4 kg
Courgette Amarela	450.0 kg
Couve Flor	247.5 kg
Couve Lombarda	540.0 kg
Couve Portuguesa	540.0 kg
Couve Roxa	540.0 kg
Espinafre	40.5 kg
Nabo	297.0 kg

Appendix 12. Kg needed for Budgeted Units of Basket Sales compared to Kg Available

Grand Total:
3083.4 kg

KG Sold in Scenario:
3000.0 kg

Sellable Products	Kg Available for sale
Alface Iceberg	171.0 kg
Beterraba	257.4 kg
Courgette Amarela	450.0 kg
Couve Flor	247.5 kg
Couve Lombarda	540.0 kg
Couve Portuguesa	540.0 kg
Couve Roxa	540.0 kg
Espinafre	40.5 kg
Nabo	297.0 kg

Scenario Planner: Budgeted Units of Basket Sales		
Basket	Units	Size
Cabaz - Familiar Size	120	8.0 kg
Cabaz - Normal Size	100	6.0 kg
Cabaz - Normal Size Solidary	80	6.0 kg
Cabaz - Semear + Fruit Basket	60	8.0 kg
Cabaz - Semear Home Basket	60	8.0 kg

Appendix 13. Annual Budget of a Semear Academia course

SELECT A COURSE:	CHOOSE A YEAR:
Curso de Operador/a Distribuição	2021

Start Date	Jan-20
End Date	Dec-22

#students	13	13	13	13	13	13	13	13	13	13	13	13

	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Total Duration of Teaching	100 h	90 h	115 h	99 h	105 h	105 h	110 h	50 h	154 h	140 h	147 h	105 h
Total Volume of Teaching	1200 h	1080 h	1380 h	1188 h	1260 h	1260 h	1320 h	523 h	154 h	140 h	147 h	105 h
Students Charges	3,785.48 €	3,458.93 €	4,275.30 €	3,765.22 €	3,948.75 €	3,948.75 €	4,112.02 €	2,022.78 €	2,144.13 €	1,996.48 €	2,070.31 €	1,627.36 €
Transportes	520.00 €	520.00 €	520.00 €	520.00 €	520.00 €	520.00 €	520.00 €	520.00 €	520.00 €	520.00 €	520.00 €	520.00 €
Refeição	1,240.20 €	1,116.18 €	1,426.23 €	1,240.20 €	1,302.21 €	1,302.21 €	1,364.22 €	620.10 €	1,364.22 €	1,240.20 €	1,302.21 €	930.15 €
Bolsa Formação	2,025.28 €	1,822.75 €	2,329.07 €	2,005.02 €	2,126.54 €	2,126.54 €	2,227.80 €	882.68 €	259.91 €	236.28 €	248.10 €	177.21 €
Direct Material	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
Direct Labour	1,660.00 €	1,494.00 €	1,743.00 €	1,419.30 €	1,944.69 €	1,819.36 €	1,921.45 €	929.27 €	3,144.37 €	2,858.52 €	3,001.45 €	2,143.89 €
Indirect Labour	3,987.60 €	4,213.99 €	4,371.66 €	4,339.19 €	4,084.30 €	4,086.58 €	4,364.92 €	2,090.31 €	606.25 €	480.93 €	577.97 €	490.73 €
Rents, Equipments and Amortizations	214.49 €	339.87 €	96.94 €	219.19 €	322.88 €	61.05 €	248.46 €	92.85 €	34.36 €	40.87 €	13.50 €	27.90 €
Other Teaching Expenses	82.22 €	135.91 €	34.21 €	0.70 €	20.68 €	29.17 €	161.60 €	46.69 €	13.17 €	16.34 €	4.77 €	0.08 €
General Expenses	462.82 €	757.61 €	561.55 €	609.17 €	457.20 €	475.57 €	799.57 €	238.24 €	74.14 €	91.11 €	78.23 €	80.68 €

GRANT 11	9,645.48 €	8,732.93 €	10,848.30 €	9,342.52 €	10,303.44 €	10,178.11 €	10,653.47 €	4,782.55 €	5,827.50 €	5,345.00 €	5,586.25 €	4,138.75 €
DIRECT COSTS	5,445.48 €	4,952.93 €	6,018.30 €	5,184.52 €	5,893.44 €	5,768.11 €	6,033.47 €	2,952.05 €	5,288.50 €	4,855.00 €	5,071.75 €	3,771.25 €
INDIRECT COSTS	4,747.13 €	5,447.37 €	5,064.37 €	5,168.25 €	4,885.07 €	4,652.36 €	5,574.54 €	2,468.09 €	727.92 €	629.25 €	674.46 €	599.40 €
TOTAL COSTS	10,192.60 €	10,400.30 €	11,082.66 €	10,352.77 €	10,778.51 €	10,420.47 €	11,608.02 €	5,420.14 €	6,016.43 €	5,484.25 €	5,746.22 €	4,370.65 €
Semear Costs	547.13 €	1,667.37 €	234.37 €	1,010.25 €	475.07 €	242.36 €	954.54 €	637.59 €	188.92 €	139.25 €	159.96 €	231.90 €
Available to Allocate	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €

Appendix 14. Variance Overview of Semear Academia

Attendance	-18%	-18.2%	-18.2%	-18.2%	-18.2%	-18.2%	-18.2%	-18.2%	-18.2%	-100.0%	-100.0%	

	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	
Total Duration of Teaching	-95 h	-87 h	-39 h	16 h	-2 h	-71 h	-113 h	-37 h	-95 h	-105 h	-105 h	
Total Volume of Teaching	-1216 h	-1120 h	-532 h	128 h	-88 h	-940 h	-1420 h	-508 h	-1216 h	-1260 h	-1260 h	

Hourly Charges per student	7.56 €	6.94 €	4.14 €	- 4.62 €	1.55 €	7.26 €	8.53 €	4.09 €	8.09 €			
Hourly Direct Cost per student	7.80 €	7.14 €	4.29 €	- 4.49 €	1.80 €	7.50 €	8.80 €	4.24 €	8.28 €			
Hourly Indirect Cost per student	61.69 €	67.18 €	46.86 €	- 200.99 €	7.47 €	61.52 €	76.42 €	52.37 €	39.33 €			
Hourly Cost per student	69.49 €	74.32 €	51.15 €	- 205.49 €	9.28 €	69.02 €	85.21 €	56.61 €	47.61 €			

Hourly GRANT 11 per student	7.80 €	6.62 €	- 2.50 €	- 142.19 €	- 26.09 €	5.93 €	9.70 €	- 3.01 €	8.42 €			