DESIGNING AND IMPLEMENTING A PERFORMANCE MEASUREMENT SYSTEM IN A SMALL COMPANY:

THE CASE OF ESTOMEO – Dental Industry

INÊS BEÇA MÚRIAS DE FARIA BARREIROS #343

A Project carried out under the supervision of:

Professor Leonor Ferreira

January, 2013

Abstract

Measuring performance assumes an extreme importance in any business. Nonetheless, a significant percentage of companies lack knowledge and skills on the area. To contribute to further study on the topic of performance measurement in small and medium sized enterprises, this research focuses on the design and implementation of a performance measurement system in a small firm operating in the dental industry, ESTOMEO, conducted as an internship, from July to December of 2012. The framework was well-accepted and so, even though the Work Project is completed there is still research to be performed, justifying an extension of the internship after December.

Keywords: *Performance Measurement System; Small and Medium Enterprises; Key Performance Indicators; Dental sector.*

1. Introduction

Nowadays, companies need to be aware of their actual performance, not only to face competition, but also to be able to survive the current economic and financial crisis. Hence, it is crucial for companies to be familiar and able to apply performance measures and, more importantly, to learn how to make them useful. Still today, several companies, especially the smaller, do not perceive performance measures with easiness, whereas most of them are not even able to select which ones are more suitable and accurate to their business. Still today, some small companies use random measures in their business, following techniques that they are not familiar with, and sometimes in which they do not even have decision power (Sekiou *et al*., 2001).

According to Moody's credit rating agency, Portugal's current trend, as also of Spain, Italy and Greece, is the increasing number of small and medium enterprises (SME)[1] filing for bankruptcy. From 2010 to 2011, this number grew 14 per cent, meaning that, per day, more than ten SME were declared insolvent. In 2012, this reality is far to be vanished, inasmuch Standard & Poor's explains that, the European economic activity is decaying and the credit markets are not stabilised. Thus, this Work Project aims at emphasizing the importance of performance measures in SME[2], particularly on the previously mentioned countries, contributing to the better implementation and use of these measures in smaller companies. It analyses performance, intending to enrich

[1] Small and Medium Enterprises are commonly familiar businesses, usually with less resources available than larger companies. According to the "Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium enterprises, the category of micro, small and medium enterprises (SME) is made up of enterprises which employ fewer than 250 persons and whose annual turnover does not exceed fifty million euros or annual balance sheet total does not exceed forty-three million euros".

[2] Why should countries worry about SME? Considering Portugal's scenario, according to the Instituto Nacional de Estatística (INE, *National Statistical Institute of Portugal*) 2012 report, in 2010, there were 1,167,811 SME against 1,153 large ones, representing 99.9% of SME against 0.1%. Continuing this rationale, on the same year, SME employed 3,071,709 versus 889,025 individuals, representing a turnover of €219,964,288 (10^3) as opposed to the €181,297,032 generated by larger enterprises. From these data, one can immediately conclude that SME assume a critical importance, particularly to Portugal.

performance measurement in SME, focusing on a specific operating sector. This can be determinant and distinctive in this world of fierce competition, specifically in services and industrial firms.

The assumption that large is good and small is bad dominates the world. However, according to Taticchi, Cagnazzo, Botarelli (2008), smaller companies usually face restricted access to capital, which can and will be an impediment towards achieving defined goals, possibly driving clients away, being therefore every single error extremely significant. Nonetheless, it is important to consider that, as opposed to larger enterprises, smaller companies' relationship with clients tend to be closer, allowing to have less but more loyal ones, making it easier to assess their needs and preferences and possibly to foster loyalty and retention, being able to compete on extremely specific products/services and providing them with a more affable prior and after "sales" service. Furthermore, as referring to smaller enterprises, usually there is a closer connection between the owner and employees. Also, there are reduced expenses, both with personnel, infrastructures/equipment, or even reduced official procedures (Vinten, 1999) and shorter internal lines of communication (Winch, McDonald, 1999). Still today, with fewer capital and resources, some SME lack knowledge on measuring performance. Having this in mind, it is easier to understand why it is difficult to implement Performance Measurement Systems (PMS) in this type of companies.

Thereby, this research project aims at answering to the following question*, How can a PMS be framed in Small and Medium Enterprises?* by designing and implementing a PMS from scratch in ESTOMEO, a SME operating in the dental industry, and where an internship for this Work Project was conducted.

This research proceeds as follows: after this introduction, section two provides the framework and main definitions, which help one to understand the flow of this project. Section three reviews the empirical literature about PMS in SME and in services/dental industry, section four presents the company, ESTOMEO. The fifth section states the Business (Research) Questions and the methodology adopted in this research, which is a single case study of ESTOMEO, where the internship was done. The sixth and seven sections show and discuss the results of the case-study, and the latter presents the recommendations. Finally, the eight section presents the final conclusions, limitations, and remarks.

2. What is a Performance Measurement System?

This section introduces and explains the key concepts to understand the flow of this research.

The key word of this Work Project is, definitely, *performance*, differently defined by several authors. When referring to *performance*, one should not only focus on employees, but also on the organization as a whole, including all firm's processes and activities needed to fulfil its business (Carter McNamara, 2006). A complementary definition is the one of Leigh Dudley (2010), which states "*performance* is about factors such as culture, mission, work-flow, goals, environment, knowledge, and skills all working together to produce something that is valuable to the client. So performance, regardless of the organization that produces the *performance*, is about outputs or results". Leigh Dudley (2010) suggests three *performance* levels (organization, processes and individuals) and argues that for one company to perform successfully the three levels should work well together. To know if companies are performing well, it is necessary to measure *performance*. Thus, a second important concept to define is the

one of the *Performance Measurement System*. According to Harvard Business School Publishing (2007) definition, "a *Performance System* is perceived as a formal *performance measurement*, a set of strategic objectives and performance metrics, including key *performance indicators* (KPI), applied throughout the entire enterprise. Thus, a PMS gives executives and managers a comprehensive, high-level view of their organization's *performance* and an understanding of how the company's different parts work together to produce business results. In many companies that use a PMS, senior executives advocate adoption of the system and manage its implementation. In order to be effective, a PMS, once it has been established, everybody in the organization contributes to and uses it, defining individual goals that support unit and company-level goals and they generate performance data that their supervisors then input into the system".

Summarizing, why is a *PMS* important? According to David Ammons (year not provided), University of North Carolina, a *PMS* works as a systematic assessment that helps identifying the operating strengths and weaknesses. Ammons reasoning is that, through this assessment, it is easier to highlight the areas that need to be further worked on and, detecting problems in time, acting as a preventive and corrective tool. Even more, the need for *PMS* on a regular basis is understood by that occasional observations can lead to misunderstandings and may be superficial. David Ammons goes even further stating that, a well-designed and implemented *PMS*, not only boosts the operating activities, but also enhances employees' abilities to perform their functions. Receiving client's suggestions and complaints also plays a role of utmost importance.

All above definitions can be incorporated in the so-called Balance Scorecard, a system, developed in Harvard Business School in the 90's. This system links four

critical aspects of any company: financial data, business, learning and growth and clients. It appears as something quite innovative, inasmuch it combines financial and non-financial information and also internal and external players of the organization, focusing on its strategic targets (Williams *et al*., 2012).

Another possible measure to assess *performance* is the use of evaluation sheets for each employee. This method, when applied on a regular basis, allows, not only the management, but also the employees, to assess their flaws, the areas in which they need training, and learn how to better serve the company.

Due to the lack of information and awareness towards cost containment, the elaboration of budgets also assumes an important role, inasmuch as it represents the expected costs and revenues for the next periods and the roadmap companies want to follow. Not only budgets allow to set goals, they also help assessing if the defined goals were achieved, acting both as a preventive and corrective measure and enriching management's knowledge in regards to company's financial statements. Weather or not the company has exceeded its expected costs for the period, and its ability to achieve the defined objectives are issues that budgets help answering.

Several studies present empirical results and conclude about the relevance of these management tools, some of them mentioned in the following section.~

3. Literature review

This section reviews previous studies about PMS in SME, These studies are summarized in **Exhibit 1** and **Exhibit 2**, the former presenting the papers used to conduct this research and the latter showing those that were analysed but not applied during this Work Project.

Companies need to apply measures that adequately fit to their size and needs (Bortoluzzi, Ensslin and Rodrigues, 2010; Hudson, Lean and Smart, 2010). Despite recognizing the value, of *performance measures*, little attention has been given to them on SME, inasmuch as most research has been focused on large enterprises, since majority of PMS are designed to be applied to large companies. Other studies argue that there should be requirements PMS should fulfil regardless of company's size, including financial and non-financial indicators, loosely defined KPI, which take into account, not only different units, but also the whole value chain, fostering communication of results (Kueng, Meier, Wettstein, 2000).

Mostly large enterprises are provided with a wide range of tools to measure performance, explaining why researchers started to gain interest in the field of SME (Garengo, Biazzo, Bititci, 2005).

Barnes *et al*. (1998) argue that most SME poorly implement PMS, due to their scarce resources, both at human and capital levels, failure to understand PMS benefits, or even the fierce competition SME face. Other arguments relate to the fact that SME tend to present scarcer financial resources, but also lack necessary skills which preventing them to have information technology systems as developed as those of larger companies (Levy *et al*., 1999). Some literature has emerged to explain PMS in SME and the factors influencing SME'S corporate governance structure, their management information systems, strategy, organizational culture and management style, external environment and companies' size (Hudson, Smart, Bourne, 2001; Garengo and Bititci, 2007). For instance, a research about the implementation of the Balance Scorecard as a PMS, by a Malaysian SME connected to health care services highlights four crucial components implemented, which are the following: learning and growth, mission and

vision, client and internal business perspective (Suprapto, Wahab, Jatmiko, Wibowo, 2009).

Companies can focus on financial or non-financial measures to assess their performance. Massalla (1994), Geanuracos (1994) and Monkhouse (1995) conclude that SME tend to be more attentive to financial indicators, rather than on non-financial measures[3].

This is, however, not sufficient evidence for enterprises to focus on, since it may not conduce to the achievement of defined objectives (Hynes, 1998), reason why the traditional way of measuring performance relying only on financial measures are being replaced by systems which also include non-financial measures (Kaplan and Norton, 1992, 1996; Basu, 2001). Some studies go even further and try to assess how do SME assess their performance, aiming to adapt the Balance Scorecard concept to SME, inasmuch it is commonly associated to large enterprises (Laitinen and Chong, 2006).

Still regarding whether SME are able to choose accurate PMS to apply on, according to Jarvis, Curran, Kitching and Lightfoot (1999), and economic theory, profit should be the measure used to assess Performance. The authors state that most owner/managers of SME tend to assess performance exclusively through "how much money is in the bank account". Once again, it shows the limited knowledge owner-managers possess in this particular area, something that stubbornly persists. According to Jarvis, Curran, Kitching and Lightfoot (1999), a significant percentage of owner-managers rely on cash instead of profits, inasmuch as profits are longer term and cash is shorter term, something critical from owner-managers' point of view. Furthermore,

[3] This may be due in part to the fact that financial reporting is mandatory and includes disclosure of traditional performance measures, such as Net income, EBIT or EBITDA and even earnings per share. On the other hand, disclosure of non-financial measures is not obligatory since so long.

there were also others that relied on the cash flow rather than simply on cash balance, focusing on the stream of money entering and exiting to the company. Nonetheless, some owner/managers prefer to use informal non-financial measures, perceived as more sensitive and faster than the use of cash, which is too much financial for them, relying, for instance, in the number of times the phone rings, which for them means work coming in, or even on some intangible measures like clients' fidelity or quickness to pay their invoices. Much better, others prefer to choose measures that give room for control and thus allow making improvements on the business and prevent the emergency of problems.

More specifically, little attention has also been given to PMS in Services' enterprises, although literature regarding management control in this type of companies has been capturing interest. Research carried by the Chartered Institute of Management Accountants (CIMA), in Cambridge, found three types of service-oriented businesses: "mass services, professional services (fits SME) and retail services, according to clients served, contact time, customization, discretion, people focus, front/back office orientation and process/product orientation" (Monkhouse, 1995). Commonly, management accounting demands measuring work in progress and finished goods inventory, terms not used in services enterprises (Dearden, 1978; Lowry, 1990), and also the intangibility of the output of service companies (McDonald and Stromberger, 1969; Hofstede, 1981; Anthony *et al*., 1989).

Taticcchi, Cagnazzo, Botarelli (2008) propose an "ideal SME Performance measurement system", inasmuch as it would be able to satisfy all the criteria, such as: Assessment, Design, Implementation, Communication/Alignment and Review. After concluding that, none of the instruments reported in previous literature was able to fulfil

all those requisites an "ideal SME Performance measurement system" was created, although each PMS must always be adapted to each company.

According to Ballantine, Brignall and Modell (1998), who analyse a PMS in the dental sector, there are several Performance dimensions and, therefore, several types of measures that can be applied to assess performance in this particular case. A clear distinction is made between clinics that provide a wide range of services with a high turnover of appointments per day (district clinics) and those who focus on very specific services and allocate a significant amount of time to each client (specialist clinics), relying, for instance, on profitability, volume flexibility, efficiency, productivity, top management, practice's managers, teams, etc. These latter clinics are smaller, and thus coordination and administration are easier tasks, and the time dedicated to these tasks is less. Moreover, initially focused on budgets, the attention shifted towards the allocation of financial responsibilities in order to reduce costs and increase staff's involvement. The focus shifted from revenues to cost containment. It is worth mentioning that practices where bonuses were previously according to revenues are based on cost ratios. This performance system was based on this ratio and on other performance indicators, such as profitability indicators, measures of client base, health status, etc. and emphasized the importance of defining strategic objectives that are capable to influence PMS.

These studies focus on a variety of different industries, such as automotive, manufacturing, and healthcare, being therefore difficult to group them according to similarities. Nonetheless, the literature review presented on the appendix was divided according to industry, stage of PMS, and results.

Being focused on different industries, and knowing about particularities there, it is difficult to make comparisons between existent studies. It is therefore of paramount relevance to enrich PMS in SME topic, and develop it inside specific operating sectors, empowering research already made.

Having this in mind, it is important to understand what future PMS research is still needed in the context of SME, and, more specifically, on the dental sector. Hence, the objective of this Work Project is to design and implement a PMS in a Portuguese dental practice, ESTOMEO, representing a resourceful tool to contribute for its growth and ability to improve its services. Therefore the goal of this Work Project is to understand how a PMS can be framed in this particular SME, and decide which is the most accurate system to ESTOMEO, as a result of an internship made. In this way, a contribution on the field of SME will be made and the main output of the Internship there from July to December 2012.

4. The case of ESTOMEO: a SME operating in the dental industry

ESTOMEO is a practice operating in the dental industry and located in Lisbon. It, was formed on the 24th September of 1987 as a limited partnership, by the hands of both its current Clinical Director and Financial and Administrative Manager.

According to ESTOMEO's top management, its vision is "to ensure the best performance essentially through three dimensions: the quality of services provided, integration of current technology, and workforce awareness".

ESTOMEO had, during 2011, an annual turnover of €438,984 and by the end of the year total assets amounted to €161,705. Moreover, until the same year, the company

received 4,583 clients and had fifteen employees. Placing these values in the definition of SME provided above[4], one can see that ESTOMEO fits within this category.

Since its annual turnover and annual total assets have been decreasing during the last three years, while the number of employees has been maintained, this is just one of several reasons explaining why building a PMS system is of paramount importance for ESTOMEO.

ESTOMEO'S Organizational Chart (functional type) is shown on **Exhibit 3**. The company comprises several performing functions. These include one Clinical Director, one Quality Manager, who also assumes the functions of Financial and Administrative Manager, ten clinics, and four assistants. The later also perform receptionist functions. The clinics are three hygienists, four dentists one of them also embracing prosthesis function, and three stomatology physicians, one assuming also the functions of Clinical Director and therefore being responsible for both clinical and prosthesis areas. The Medical Director assumes a role of extreme importance, since his main responsibility is to supervise not only who works in the dental practice, but also the supply of products and materials. As for the Quality Manager, the main function is to improve the operating processes, focuses also on the training processes, and to act as a spokesman of the practice whenever it is needed. The Financial and Administrative Manager deals with payments and invoices and is in charge of compiling the information. Furthermore, the medical area responsible is in charge of coordinating and supporting the staff and to check the needs of supply. The prosthesis area responsible must act as a coordinator of the prosthesis specialists, who perform the fixed and removable implants and also are in charge of all laboratory's needs. Following the same rationale, the hygienists perform

[4] See footnote 1.

oral hygiene and can also assist physicians. Finally, the receptionists and assistants work in parallel, since all of each one may perform one or the other, being responsible of preparing the cabinet and assist the physicians and also to welcome the clients. . Nonetheless, these functions are extensively presented on **Exhibit 4.** In regards to its financial accounting, it is outsourced to NUCASE, an accounting and human resources management firm.

In order to understand this company's business, Porter Value Chain analysis was applied to the company, and it is presented on **Exhibit 5**.

5. Business (Research) Questions and methodology

Relying exclusively on not written partial, informal, financial and obligatory information, ESTOMEO has no formal budgets, plans, strategy or defined objectives, as it only takes into account historical accounting and financial information. Hence, so that it is possible to assess PMS in this particular small enterprise, it is of paramount relevance to establish several Business (Research) Questions, creating a sequence and highlighting the main issues to cover[5]:

RQ1: Who is part of the for performance measurement? Who designs the system? Who implements it? Who controls the results?

RQ2: Which are the objectives of the performance measurement? Which areas to be covered? What indicators to be measured? Which are financial? Which are non-financial? Which are quantitative? Which are non quantitative?

RQ3: What are the sources of data? What is the frequency of measure?

Given the lack of focus on SME's performance measurement, it seems important to understand the operations of small companies. Thereby, the methodology used throughout this Work Project is an internship and the consequent analysis of the case

[5] Questions linked to the defined KPI and the company's strategy, as also the control of obtained results are not covered in this Work Project.

study, focused on the importance of a carefully structured PMS adapted to the specificities of a SME industry.

In this context, and being aware of the tough times felt by SME, it seems relevant that smaller companies develop or improve mechanisms that are able to protect them against it. Hence, a particular small enterprise environment was warily chosen. ESTOMEO, a company operating in the dental sector, having no designed PMS, was subject of a rigorous and detailed analysis so that it was possible to design a system that best suits its characteristics and needs.

In order to proceed with the research, primary and secondary data sources were gathered. In regards to the primary sources, semi-structured exploratory interviews were openly conducted in July, following a series of questions during half an hour, being the remaining time freely conducted, so that it was possible to create an informal conversation about the topics of PMS. The goal was to explore how performance was perceived inside SME and check whether or not a PMS already existed, interviewing those who have more knowledge and responsibility on the company's decision making process, the Clinical Director, the Financial and Administrative Manager, who also assumes Management and Quality manager functions, and the Receptionists/Assistants. Furthermore, the purpose was to extract, from interviews' questionnaires, relevant information to build key performance indicators (KPI), which would then be designed and tested/applied to a three years period (2009-2011), representing a test for the validity of the model. The details of the interviews are provided on Table I (Interview's details) and the questionnaire on **Exhibit 6**.

Table I – Interviews' details

Respondent	Position held	Channel	Nr. of interviews	Duration (Minutes)	Date (day/month/year)
Respondent A	Clinical Director	Orally[6]	1	45'	2/07/2012
Respondent B	Financial and Administrative Manager/Quality Manager	Orally[6]	1	90'	2/07/2012
Respondent C	Receptionist/Assistant[7]	Orally[6]	2	30' + 40'	5/07/2012 9/07/2012
Respondent D	Receptionist/Assistant[7]	Orally[6]	2	25' + 45'	5/07/2012 9/07/2012
Respondent E	Receptionist/Assistant[7]	Orally[6]	2	25'+ 35'	5/07/2012 9/07/2012
Respondent F	Receptionist/Assistant[7]	Orally[6]	2	30'+ 30'	5/07/2012 9/07/2012
Respondent G	Stomatology physicial	Orally[6]	1	45'	2/07/2012

As for the secondary data sources, financial statement (profit and loss statement, statement of financial position, and the notes, monthly trial balances), reports and accounts (management reports, "Relatório único"), documents, newsletters and the complaints book were analysed.

6. Performance Measurement in a SME

6.1. Performance Measurement Diagnosis

A thorough analysis found that the ESTOMEO only possesses an extremely undeveloped PMS, based solely on bonuses or countervailing subsidies. Bonuses are awarded according to attendance and punctuality. Countervailing subsidies rotate among the four Receptionists/Assistants, since it is only provided when their presence is

[6] Orally but not recorded.
[7] More than one interview with the receptionists/assistants was performed, as it was necessary to clearly understand ESTOMEO'S daily operations, since these employees are the ones who spend more time at the practice.

required in conferences or courses occurring during a small number of weekends, rewarding those who are willing to participate.

All existent rewarding methods have been applied without relating them to the PMS concept, underestimating its importance in the context of SME, reason why this Work Project aspired to design and implement the best suitable PMS for the practice.

Interviews shown that this company's employees do not feel the need to have a PMS applied to ESTOMEO, since they have always worked without it. Moreover, some employees tend to be change averse, being management's responsibility to persuade them otherwise, something that is reflected on the comments made by a physician:

> "*Implementing a PMS would deviate my focus from daily activities towards the idea that I would be being constantly evaluated*" [RESPONDENT G].

A receptionists/assistants, commented differently:

> "*A well balanced and organized system would be advantageous, not only for ESTOMEO, but also for us, inasmuch as it would allow to organize tasks and our functions and to find areas in which we could improve on".* [RESPONDENT A].

ESTOMEO'S top management is one of the main reasons why a PMS was developed, since, through the interview process, it was clear that the lack of organization and the gap of methods for measuring company's performance were felt by the management and were therefore something that needed to be fulfilled*:*

> *"Actually, it is obvious that the practice at ESTOMEO does not have the appropriate management style. But it is so difficult to make change happen!"*

Through these interviews, it was possible to ascertain that the development of a performance measurement system would play an important strategic role for this company.

6.2. Performance Measurement System proposal

In order to create a PMS for ESTOMEO, several aspects were taken into account: (1) focus not only on financial, but also on **non-financial aspects;** (2) KPI focused, exclusively, on **client's welfare;** (3) KPI adapted to ESTOMEO'S **size and activity**.

1. *Focus not only on financial, but also on **non financial aspects***: One of the most relevant self-critics made by ESTOMEO'S top management, was that:

   > *"Even though that we did not focus much on performance measurement, the little attention that has been given is only to financial aspects"* (RESPONDENT A, Medical director).

   Since receptionists/assistants were never used to work with indicators; the lack of focus on non-financial aspects was not even noticed. Moreover, it is also worth noticing that, despite describing ESTOMEO'S operations mentioning the usage of client satisfaction surveys and handling of complaints, in the end, this was something that was not applied.

2. *Create several KPI focused, exclusively, on **client's welfare***: In one of the statements provided by ESTOMEO's top management, the financial and administrative manager commented that

   > *"Most companies tend to focus solely on their own welfare, meaning, on its generated return. It is obviously true, but clients need to come first, to be our number one priority, reason why we recognize that one of our most serious flaws is, definitely, not giving attention to performance measurement and its consequences, since it, bottom line, would open our eyes to what is still missing and what is needed to provide our clients with whatever they need. Notwithstanding, it is especially difficult to apply this to ESTOMEO because it is a small company"* [RESPONDENT B]

   .

3. *Use KPI adapted to ESTOMEO'S **size and activity***: Top management stated that *"it would be critical to measure the services rendered, purchases, or even the annual profit",* again focusing solely on financial aspects. On the other hand, according to ESTOMEO'S receptionists/assistants:

> *"The number of implants performed and the laboratory work are two critical indicators, as well as the number of client complaints or even their waiting time, as they would allow to measure clients' satisfaction".*[RESPONDENT F]

Eventually, the definition of key performance indicators, the design of evaluation sheets for employees and the elaboration of budgets (cash budget and cost and revenues estimates) have emerged as the best suitable PMS tools for ESTOMEO. This internship report details only the first two tools. The cash budget and cost and revenues budgets are not presented in this report[8]. When defining the indicators to be applied, the rationale from the Balance Scorecard concept was followed, since it allows combining both financial and non-financial aspects and is able to cover a significant number of business departments.

Table II (Financial and non-financial indicators) presents the list of indicators, which were divided in financial and non-financial, taking into account that the former ones are general and the latter are specific to a dental practice

[8] This decision is due only to limitation of pages in the report. The Management team of the company is aware of the importance of the use of budgets in ESTOMEO. This tool will assume an important role there, inasmuch it will help the management to be more familiar with its costs and revenues. Additionally, the cash budget estimates of its payments and receipts for the months of November and December. During this stage of budgeting, some difficulties emerged: it was not easy to predict revenues for ESTOMEO, since, from September of 2011 until October of 2012, the volume of services rendered fluctuated enormously from month to month. In regards to payments structure, several items were forecasted based on past period amounts and common size values, on an average basis (water, electricity, and fuel), while others were estimated taking into account that there would only be a specific number of payments during the year in fixed dates, which had already been made (rents, surveillance, vehicle and income taxes) and others were computed taking into account the amounts of the same period of the previous year (employees benefits expenses and taxes, fees, withholding taxes, etc.).

Table II - Financial and non-financial indicators

Non-financial indicators (Specific for the dental sector)	**Financial indicators (General)**
- Client's average waiting time. - Reduction of client's waiting time. - Number of implants performed. - Annual 10% increase in the number of implants performed. - Number of laboratory work units performed. - Annual 10% increase in laboratory work. - Non-existence of non-conformities caused by suppliers' defaults. - Non-existence of non-conformities caused by lack of equipments' maintenance. - Meet the annual training program. - Number of effective corrective measures/ total of corrective measures taken. - Number of new clients. - Increase in the number of new clients. - Number of clients' complaints.	- Services rendered. - Purchases. - Supplies and services. - Wages. - Income before taxes. - Net profit - Operating sales margin. - Total assets turnover - Average period of payment to suppliers - Debt to assets ratio. - Quick ratio. - Return on investment (ROI). - Tangible fixed assets. - Total net assets. - Cash and equivalents. - Funding. - Accounts payable..

In regards to the evaluation sheet, it was developed for the physicians, hygienists, prosthesis specialists, assistants and receptionists, being useful, for instance, to improve wages, attribute bonuses, to change functions and tasks and to diagnose the need for training or courses. The likert scale used in this assessment sheets was from 1 to 5 to grade and classify employee's performance, and its purpose is both for the management to evaluate the employees and also for employees to make a self-evaluation, controlled afterwards by the Management Director. The evaluation sheet is to filled twice a year (January and July) and presents two forms: one assessing tasks' fulfilment (adapted to each job position) and other general aspects (equal for all job positions), the later was adapted from Sekiou et al. of 2001. Furthermore, it also presents, at the bottom, a blank area to write comments and observations.

Hence, on **Exhibit 7**, it is presented the forms to assess tasks' fulfilment for all job positions and one form to assess general aspects, which apply to everybody working in the company. These general aspects to be evaluated are the following: punctuality, initiative, autonomy, workload, work quality, skills, collaboration, conduct and resourcefulness.

Exhibit 8 in Appendix provides the details of the system proposed and explains the application of each indicator namely, the calculation for each KPI, who analyses it, who applies, and what will be the appropriate frequency.

When developing the proposed PMS, several **constraints/limitations** appeared. Being ESTOMEO a small company, it became difficult to apply some indicators. For instance, regarding the internal processes, measuring the appointments cancellation and its rate per year was considered relevant. On the other hand, inside the learning and growth perspective, having assess to the number of active clients and the re-appointment rate would also be crucial to measure, again not possible due to DentOral's limitations. Hence, ESTOMEO'S current available software, made it difficult to access several indicators.

At this stage, having the PMS developed, it was critical to apply it to ESTOMEO and test it: the system was completed by the middle of November and started to be tested afterwards.

After being introduced to the new PMS, praises and complaints were made during the second round of interviews performed, on the 3rd of December, after the system development, during the phase of application, to the same respondents and following the exact same structure. According to a physician:

> *"it is difficult to deliberate weights to attribute to some indicator, but we feel that their existence helps us to guide ourselves".*[RESPONDENT G]

Respondents C, D, E and F, receptionists/assistants, mentioned that

> *"There are too much indicators to be assessed."*[RESPONDENT C]
>
> *"So many lines to fill and evaluate, somehow, intimidates our work."*[RESPONDENT C];
>
> *"The need to be constantly evaluating and measuring components creates constraints, being the time required one of the most critical ones, but it is fair knowing that all of us working for ESTOMEO are being evaluated with possible common criteria, and this is really challenging."*[RESPONDENT E]*;*
>
> *"I think that this reluctance is only an initial response to a new component of our work.at ESTOMEO.*"[RESPONDENT F];

As for the top management, it was felt that, despite the initial resistance:

> *"Itt is recognised that the implemented PMS is starting to be an important asset that will allow us to make a trade-off between the past panorama (no performance measures tools) and the establishment of KPI and evaluation forms. An almost non existing old control system, in which only the management had a role, switched to one where all the fifteen employees feel more and more committed and welcomed to participate, despite the natural initial resistance".*

As a whole, considering that this PMS was built from scratch, it represented not only an advantage, but also a difficulty. If, on one hand, any new indicator would be relevant, it would also be difficult to select the most relevant and critical ones, since having too much indicators would probably distract from the core aspects, probably leading to the opposite of what was intended: declining performance. Following this rationale, since there were only loose rewarding items, it was difficult to build a PMS in which the company's members would have no incentives to make it work. Still more, the lack of skills in regards of PMS may represent an obstacle for ESTOMEO'S members to work with the new system, but it is something that, along with training, will quickly be overcome.

7. Recommendations

As an internship, recommendations assume a paramount importance. Hence, this section presents a set of suggestions:

- *System of Management Compensation*: one important recommendation would be for the company to create a system of management compensation, including a fixed salary and potential bonuses. ESTOMEO started only with loose and rudimentary bonuses and countervailing subsidies, which were not integrated in any complex system. This would allow for employees to feel more as an important piece of the company and therefore being gratified during profitable years.
- *Client's satisfaction survey*: One other possible recommendation would be for ESTOMEO to create a survey to assess client's satisfaction, since, despite the top management mention recognizing its importance it was never implemented. This would allow for the practice to be aware of clients' needs and to reach them easily.
- *Replace current software*: Replacing DentOral is needed, since it does not cover either the area of performance indicators, nor it allows assessing, important KPI such as the number of active clients, meaning that it only providing basic tools. Moreover, it is crucial that receptionists/assistants receive training, in order to be familiar with all the functions provided by the software in use, either the current software or a future one.

8. Conclusion

The purpose of this research was to design and implement performance measures in a SME, ESTOMEO, a company operating in the dental sector.

This project provides evidence across the importance of the existence of a well balanced and criteriously chosen PMS adapted to SME, particularly to those in the dental industry.

Previous research shows a growing interest on SME and, more specifically, on the subject of PMS applied in SME. Nonetheless, there is still so much to do, since this is a particularly undeveloped area, in which there is no complex research completed to apply to SME in the dental industry. So, this Work Project contributed towards the enrichment of literature in the area of SME operating in the dental industry.

The main objective of this PMS was to find a way to systematic assess operating activities of a business. More specifically, to develop KPI within each operating area of the company, this emerged from areas of an adapted Balance Scorecard. This allowed each member of the organization to have an active role and participate among company's decisions. Furthermore, besides developing the system of financial and non financial KPI, adapted from Balance Scorecard areas, this PMS also consisted on the development of evaluation forms, which assessed not only employees' specific tasks fulfilment, but also general aspects which apply to everybody in the company.

The main result of this research was the PMS designed. It is a system adapted to ESTOMEO'S needs: the creation of a system from scratch, since the company only possessed extremely rudimentary items. This system consists on the creation of a set of KPI and the design of evaluation forms, both contributing towards the organization and assessment of company's operating activities. The system is currently operating, and

was applied without opposition, inasmuch the employees approved it and understand the advantages of such a framework. The employees did not face difficulties or disagreement when filling the forms, and last but not least, are in general satisfied with the new PMS in use at ESTOMEO. The Management team of ESTOMEO has now this additional management tool, which is expected to contribute for the success of the company.

Regarding future research, since there still exists work to be completed, the internship was extended for the next semester. The budgets are to be completed (still there are some objectives to be clearly defined regarding the time line) and deviations are to be determined. Moreover, it would also be interesting to focus on the growth perspective of the company and define indicators associated with it.

Bibliography

Ammonds, David. 2007. "Performance measurement: a tool for accountability and performance improvement": article 16.

Ballantine, Stan; Brignall, Jon; Modell, Sven. 1998. "Performance Measurement and Management in Public Health Services". *Management Accounting Research*, 9: 71-94.

Behn, Robert. 2003. "Why measure Performance? Different Purposes Require Different Measures". *Harvard University Public Administration Review*, 63(5).

Bortoluzzi, Sandro César; Ensslin, Sandra Rolim; Ensslin, Leonardo; Rodrigues, Ernesto Fernando Vicente. 2010. "Organizational Performance Assessment Practices in Small and Medium Businesses: an investigation in a medium sized firm from the furniture sector". *Revista Produção Online*, 10(3): 551-576.

Garengo, Patrizia, Biazzo, Stefano, Bititci, Umit. 2005. "Performance measurement systems in SMEs: A review for a research agenda". International Journal of Management Reviews, 7(1): 25–47.

Garengo, Patrizia; Bititci, Umit. 2007. "Towards a contingency approach to Performance measurement: an empirical study in Scottish SME". *International Journal of Operations & Management*, 27(8): 106-119.

Hudson, Mel; Lean, Jon; Smart, Andi. 2001. "Improving control through effective Performance measurement in SME". *Production Planning & Control*, 12(8): 804-813.

Hudson, Mel; Smart, Andi; Bourne, Mike. 2001. "Theory and practice in SME Performance measurement systems". *International Journal of Operations & Production Management*, 21(8): 802-825.

Hynes, Briga. 1998. "Small firm growth: performance measurement issues". *Conference Proceedings Performance Measurement – Theory and Practice*, 2: 499–506.

Jarvis, Robin; Curran, James; Kitching, John; Lightfoot, Geoffrey. 1999. "The use of quantitative and qualitative criteria in the measurement of Performance in small firms". *Journal of Small Business and Enterprise Development*, 7(2).

Kaplan, Robert and Norton, David. 1992. "The Balanced Scorecard: the measures that drive performance". *Harvard Business Review*, Jan–Feb, 71–79.

Kaplan, Robert and Norton, David. 1996. "Using the Balanced Scorecard as a strategic management system". *Harvard Business Review*, Jan–Feb, 75–85.

Laitinen, Erkki. 1996. "Framework for Small Business Performance Measurement". University of Vaasa.

Kueng, Peter; Meier, Andreas; Wettstein, Thomas. 2000. "Computer-based Performance Measurement in SME: is there any option". *Conference on Systems Thinking in Management"*.

Laitinen, Erkki; Chong, Gin. 2006. "How do smaller companies measure their performance?". *Problems and Perspectives in Management*, 4: issue 3

Levy, Margi, Powell, Philip. and Galliers, Robert. 1999. “Assessing information system strategy development frameworks in SMEs”, *Information and Management*, 36(5), 247–261.

Modell, Sven. 1996. “Management accounting and control in services: structural and behavioural perspectives”. *International Journal of Service Industry Management*, 7(2): 57-60.

Monkhouse, Elaine. 1995. “The role of competitive benchmarking in small to medium-sized enterprises”. *Benchmarking for Quality Management & Technology*, 2(4): 41-50.

Neely, Andy, Mills, John, Gregory, Mike, Richards, Huw, Platts, Ken. and Bourne, Mike. 1996. “Getting the Measure of Your Business”.

Sekiou; Blondin; Fabi, Peretti, Bayad, Alis, Chevalier. 2001. “Gestion des ressources humaines”. France. Instituto Piaget,.

St-Pierre, Josée; Delisle, Sylvain. 2007. “An expert diagnosis system for the benchmarking of SME’S Performance”. *Benchmarking: An international Journal*, 13(1/2).

Suprapto, Budi; Wahab, Hasnida Abdul; Wibowo, Alexander Jatmiko. 2009. “The Implementation of Balance Score Card for Performance Measurement in Small and Medium Enterprises; Evidence from Malaysian Health Care Services”. *The Asian Journal of Technology Management*, 2(2): 37-49.

Taticchi, Paolo; Cagnazzo, Luca; Botarelli, Marco. 2008. “Performance Measurement and Management (PMM) for SME: a literature review and a reference framework for PMM design”. *Annual Conference La Jolla.*

Williams, Jan; Haka, Susan; Bettner, Mark; Carcello, Joseph. 2012.: *Financial and managerial accounting: the basis for business decisions,* 16th Ed., New York, McGraw-Hill/Irwin.

Zheng, Connie; Morrisson, Mark; O’Neill, Grant. 2006. “An empirical study of high Performance HRM practices in Chinese SME”. *The International Journal of Human Resource Management*.

Timeframe/Schedule for stages of project

Event	Time Frame							
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Conduct literature research	X	X	X					
Data collection: - literature - company's background - company's current situation		X	X	X				
PMS diagnosis in ESTOMEO			X	X				
Interviews (1st round)				X				
Define areas to Assess			X	X	X			
KPI development			X	X	X			
DentOral software Assessment			X	X	X			
Re-do needed indicators					X	X		
Build the system - defining indicators - Building evaluation forms					X	X	X	
Interviews/Feedback (2nd round)							X	
Recommend							X	
Review							X	X
Final draft								X
Presentation								X

Appendix

Exhibit 1 – Literature Review (applied)

Author	Country	Subject	Methodology	Industry	Stage of PMS	Results
Bortoluzzi, Ensslin, Ensslin (2010)	Brazil	Examines the organizational performance measurement in a medium-sized firm. Performance measurement practices are connected to strategic alignment and with financial and non-financial measures.	Case study (Exploratory case study)	Furniture sector	Use	Investigated performance measurement practices, taking into account SME's characteristics, resources, dimensions, among others.
Sven Modell (1995)	Sweden	Gap of PMS in Services. Analyses characteristics typically distinguish services and manufacturing companies.	Case study (Interviews)	Dental sector	n/a	Proposed options to not neglect accounting control in services' sector and its framework stresses a shift from management accounting to management control.
Hudson, Smart, Bourne (2001)	UK	Empirical research of performance measurement processes for small and medium sized firms. Analyses ten performance measurement practices. Suggests how can SME easily implement PMS.	Case study (Survey and Interviews)	n/a	Use	Found substantial obstacles in PMS's implementation in SME, as it requires too much resources and strategies.

Author	Country	Subject	Methodology	Industry	Stage of PMS	Results
Garengo, Bititci (2007)	UK	Performance assessment practices in SME. Relates Corporate Governance, information and behaviours to the effective implementation of PMS.	Case study (Exploratory case study)	Manufacturing (bottles, doors/windows, instruments)	Use	Corporate governance was one of the most important factors perceived to influence performance measurement. Also found that authoritative management style facilitates PMS implementation.
St-Pierre, Delisle (2006)	Canada	Shows how can benchmarking of performance measurement impact organizational performance positively, both operationally and financially.	Benchmarking	n/a (General SME)	Design and implementation	Developed a fully implemented system relying on benchmarking of SME's performance, adapted to their specificities.
Suprapto, Wahab, Wibowo (2009)	Malaysia	Improve for clients, employees, stakeholders, and society demands to measure performance accurately. Analysis the Balance Score Card as a PMS in SME, more specifically in healthcare centers in Malaysia.	Case study	Healthcare sector	Implementation	Its findings revealed that Balance Score Card could be appropriate to Malaysian SME.
Behn (2003)	US	No PMS is appropriate for all matters, its structure depends on managerial purposes that public managers intend to focus on.	Empirical study	n/a (Public managers)	n/a	Presented eight purposes for public managers to measure performance (evaluate, control, budget, motivate, promote, celebrate, learn and improve).

Author	Country	Subject	Methodology	Industry	Stage of PMS	Results
Hudson, Lean, Smart (2010)	UK	Attempts to offset the existing gap in operational measures development, to achieve sptrategic goals. Argues that some performance measurement approaches are inadequate for SME.	Case study	Automotive sector	n/a	Proposed a system to develop performance measures, allying them to strategic objectives, possibly leading to SME's progress.
Zheng, Morrison, O'Neill (2007)	China	Positive and negative impacts of Human Resources Management in SME's performance.	Testing models	n/a (General SME)	Use	Its results show that the importance of Human Resources Management practices in Chinese SME.
Jarvis, Curran, Kitching, Lightfoot (1999)	UK	Examines qualitative and quantitative criteria taken into account when measuring performance of SME.	Interview	Manufacturing and Service sectors	se	Owner managers tend to not rely on profit as the key indicator of business performance.
Kueng, Meier, Wettstein (2000)	Switzerland	Discusses some performance measurement approaches focusing on the SME's needs and highlights IT as an enabler of multidimensional PMS.	Empirical study	Dental sector	n/a	Presents several options supporting computer based performance measurement, and emphasizes the importance of independent PMS.
Ballantine, Brignall, Modell (1998)	Sweden	Competition and improved management lead to changes in PMS. Analyses management practices and performance measurement.	Case Study	Healthcare sector	Use	Explained that Health care PMS and information systems have are closely connected, and the importance of combining financial and non-financial indicators.

Exhibit 2 – Literature Review (not applied)

Author	Country	Subject	Methodology	Industry	Stage of PMS
Yusof, Aspinwall (2000)	UK	Claims lack of attention given to SME total quality management.	Survey	Automotive sector	Implementation
Taticchi, Cagnazzo, Botarelli (2008)	US	Highlights the main difficulties found by companies when implementing PMS. Evaluates frameworks currently available and suggest an integrated framework of performance measurement.	Literature Review	n/a	n/a
Bititci, Carrie, Turner (n/a)	UK	Aims to develop a Reference Model and an Audit Method for PMS.	Reference model	n/a	Implementation
Monkhouse (1995)	UK	Emphasizes the little use of Non-financial measures when measuring performance in SME, as also little focus on services companies. Mentions the barriers faced by SME, which discourages PMS usage.	Case study	n/a	n/a
Sellitto, Borchardt, Pereira (2006)	Brazil	Proposes a Multicriterial framework for strategic performance assessment, particularly for the urban passenger transportation operation, which is then compared to other companies PMS operating in the same sector.	Case study	Collective transportation sector	Use

Author	Country	Subject	Methodology	Industry	Stage of PMS
Cassel, Nadin, Gray (2001)	UK	Assesses SME demand for PMS and the characteristics of systems in these companies. Shows that, despite initial reluctance to implement PMS, companies tend to recognize their positive results.	Survey	n/a	Use
Neely (1999)	UK	This study wonders why PMS topic is so discussed, and comes with seven main fundamental reasons. Proposes a framework and states areas that must be improved.	Literature review	n/a	n/a
Sousa, Aspinwall, Rodrigues (2006)	UK	Searches for the crucial measures and obstacles during the adoption of a PMS in English SME, trying to fulfil the gap existent on this subject.	Survey and testing models	n/a	Implementation
Neely, Gregory, Platts (2005)	UK	Focus on PMS design, rather than on the implementation of its measures.	Literature Review	Manufacturing sector	Design/implementation
Marri, Gunasekaran, Grieve (1998)	UK	Forced change in SME's manufacturing strategies, products, markets during the 80's and 90's, moment when PMS started gaining importance.	Conceptual model	n/a	Implementation

Author	Country	Subject	Methodology	Industry	Stage of PMS
Bititci, Carrie, McDevitt (1997)	UK	Aims to provide a set of useful tools to evaluate current PMS, in order to build more effective ones.	Design PMS	n/a	Use and Implementation
Purbey, Kampman, Bhar (2007)	India	Focus on the importance of PMS in the healthcare sector, which should always be focused on both the internal and external environment.	Literature review	Healthcare sector	Implementation
McAlexander, Kaldenberg, Koenig (n/a)	n/a	Focus on the growing importance of Service Quality Management in dental practices.	Case study/questionnaire	Dental sector	n/a
Azevedo (1991)	Brazil	Highlights the extreme impact of PMS in the healthcare sector and its complex services.	Literature review	Healthcare sector	Use
Chang, Lin, Northcott (2002)	UK	Analysis whether the Balance scorecard is or is not a good approach in this particular sector.	Empirical study	Healthcare sector	Implementation
Li, Benton (1995)	US	Relates PMS and cost control.	Empirical study	Healthcare sector	Use

Exhibit 3 – ESTOMEO's Organizational Chart

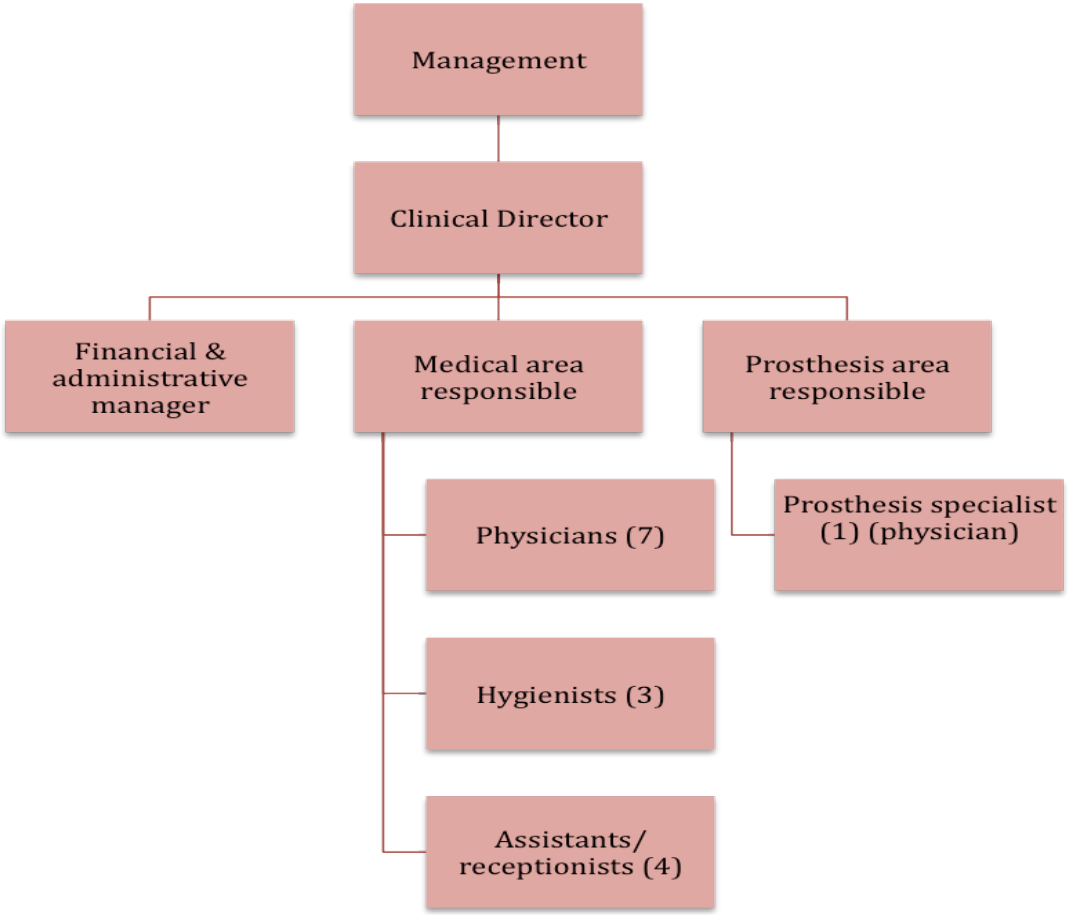

Exhibit 4 – Functions' description

POSITION HELD	**TASKS IN CHARGE OF**	**TO PERFORM THIS FUNCTION, ONE MUST**
Clinical Director	• Ensuring the availability of necessary resources for the proper functioning of the practice and the implementation and maintenance of Quality Management System (QMS). • Promoting the revision of the QMS • Deciding on the materials/clinical products to be provisioned. • Checking training needs of employees and promote their accomplishment.	• Be a stomatology physician/dentist to perform this function.
Quality Manager	• Ensuring the operation of the QMS in place. • Proposing/implementing improvement. Actions to achieve continuous improvement of existing processes within the practice. • Representing external entities before the practice, when it comes to quality management affairs. • Planning internal audits, • Promoting the analysis of the results of surveys of client satisfaction, report QMS status to the Clinical Director, • Deciding on the materials/clinical products to be provisioned, • Checking the training needs of employees and promote their accomplishment. • Clinical Director can replace the Quality Manager.	• Have knowledge in Quality Management and in Windows operative system.
Financial and Administrative Manager	• Controlling invoicing and payments is a crucial task. • Updating/compiling workers' information, promote timely acquisition of materials and/or services, selecting and evaluating suppliers and inform suppliers about evaluation results. • Clinical Director can replace the Financial and Administrative Manager.	• Have one year of experience in the area and Windows operative system knowledge are required functions assumed.
Clinical Area Responsible	• Coordinating and supporting the practice's staff. • Ensuring that the practice possesses the resources, both human and material. • Promoting the delivery of training, when necessary.	• Be a stomatology physician/dentist to perform this function.

POSITION HELD	TASKS IN CHARGE OF	TO PERFORM THIS FUNCTION, ONE MUST
Prosthesis Area Responsible	• Coordinating and supporting the prosthesis specialist. • Ensure that the prosthesis area has the necessary resources. • Ensuring the quality of production. • Promoting delivery of training, when necessary..	• Be a stomatology physician/dentist to perform this function.
Physicians	• Outlining and performing client's planned treatment, validating the assessment notice regarding their inquiries. • Performing invoice processing. • Indicating the need for materials/clinical products. • Since ESTOMEO only has only convention with CGD, the clinics must alert their CGD's clients for the delivery of Modelo 9, being responsible for its filling. • Clinics can be replaced by stomatology physician or by the Clinical Director.	• Be a dentist/stomatology physician to perform this function.
Prosthesis specialist	• Identifying the work to be done, perform prosthesis (fixed and removable implants). • Fixing prosthesis. • Making purchase orders of materials/products for the laboratory. • Creating study models. • Performing appliances of containment. • Ensuring the cleaning/maintenance of all ESTOMEO's laboratory equipment. • In case of equipment failure the Prosthesis specialist must request repair. • Prosthesis specialist can be replaced by any other prosthesis specialist.	• Be a prosthesis specialist or a dentist to perform this function.
Hygienist	• Producing a list of paths to perform the work. • Providing assistance to physicians, import all necessary information for QuickCeph software (used to register all procedures done). • Alerting the Clinical Director regarding the need of performing the cephalometric[9] tracing. • Controlling sterilization process quality. • Managing and organizing ESTOMEO´s agenda.	• Have a Hygienist degree and one year of experience in the area. • Be able to deal with Windows operating system.

[9] *Cephalometric* analysis is the study of the dental and skeletal relationships in the head (http://en.wikipedia.org/wiki/Cephalometric_analysis)

POSITION HELD	TASKS IN CHARGE OF	TO PERFORM THIS FUNCTION, ONE MUST
Assistant	• Preparing the cabinet. • Performing the sterilization process. • Providing assistance to physicians. • Assuring the security of cabinet's informatics. • Supporting the physician by providing and updating the client's chart and records, as the treatment is carried out. • Proceeding the issue of data for invoicing. • Completing the registration of order requests to the laboratory. • Receiving and storing orders, controlling stocks (inputs and outputs of material), alert for the necessity of material/product purchase. • Making radiographs (panoramic radiography and teleradiography). • Identifying and archive study models. • Managing and organize ESTOMEO's agenda. • If needed, the assistant must perform receptionist's work. • Any other Assistant or Hygienist can replace the Assistant specialist	• Have an assistance certificate, one year of experience in the area. • Have completed the 12th grade. • Have knowledge about Windows operating system. • Good presentation.
Receptionist	• Welcoming and serve clients, take phone calls, check queries, confirm appointments, manage and rearrange the ESTOMEO'S AGENDA, according to re-schedules and waiting list. • Receiving model 9 from CGD's clients, update the second payment of CGD. • Updating the second payment of CGD's beneficiary's dental braces six months after placement. • Supporting the sterilization process. • Ensuring the maintenance of cleanliness of the waiting room and sanitary facilities, receive payment from consultations, and deliver/receive client satisfaction surveys. • At the end of the week, the Receptionist must print and file the schedules of all clinics for the following two weeks, and, at the end of each month, print list of invoices.	• Have completed the 12th grade. • Have knowledge about Windows operating system and good presentation

Exhibit 8 – KPI Description

ESTOMEO	KEY PERFORMANCE INDICATOR	METRICS	ANALYSIS			
			DATA	WHO ANALYSES	WHO APPLIES	FREQUENCY
Non financial indicators (1)	Client's average waiting time (clients)	Patients' average waiting time n < Patients' average waiting time n-1 < Patients' average waiting time n-2	DentOral software	Financial and Administrative Manager	Receptionists/assistants	Annual
	Reduction of client's waiting time	(Client's waiting time of year n – client's waiting time of year n-1) -1 (Client's waiting time of year n-1 – client's waiting time of year n-2) -1	DentOral software	Financial and Administrative Manager	Receptionists/assistants	Annual
	Number of implants performed (implants)	∑ year n implants > ∑ of year n-1 implants > ∑ of year n-2 implants	DentOral software Clients' files	Financial and Administrative Manager	Clinical area responsible	Annual
	Annual 10% increase in the number of implants performed (implants)	∑ n-1 implants/ ∑ of n-2 implants > 10% ∑ n implants/ ∑ of n-1 implants > 10%	DentOral software Clients' files	Financial and Administrative Manager	Clinical area responsible	Annual
	Number of laboratory work units performed (unit)	∑ year n implants > ∑ of year n-1 implants > ∑ of year n-2 implants	Laboratory files	Financial and Administrative Manager	Prosthesis area responsible	Annual
	Number of laboratory work units performed (unit)	∑ year n implants > ∑ of year n-1 implants > ∑ of year n-2 implants	Laboratory files	Financial and Administrative Manager	Prosthesis area responsible	Annual

ESTOMEO	KEY PERFORMANCE INDICATOR	METRICS	ANALYSIS			
			DATA	WHO ANALYSES	WHO APPLIES	FREQUENCY
	Annual 10% increase in laboratory work (units)	∑ n-1 laboratory work/ ∑ of n-2 laboratory work > 10% ∑ n laboratory work/ ∑ of n-1 laboratory work > 10%	Laboratory files	Financial and Administrative Manager	Prosthesis area responsible	Annual
	Non-existence of non conformities caused by suppliers defaults	∑ n-2, n-1, n non conformities caused by suppliers default = 0	Suppliers information	Financial and Administrative Manager	Receptionists/assistants	Annual
	Non-existence of non-conformities caused by lack of equipments' maintenance	∑ n-2, n-1, n non conformities caused by lack of equipments' maintenance = 0	Equipments' maintenance	Clinical area responsible	Receptionists/assistants	Semi annual
	Meet the annual training program	∑ courses taken / planned training ≥ 1	Planned training	Quality Management Responsible	Financial and Administrative Manager	Semi annual
	Number of effective corrective measures/ total of corrective measures taken	Effective corrective actions/ total of corrective measures taken ≥ 95%	Preventive and corrective measures	Quality Management Responsible	Financial and Administrative Manager	Annual

ESTOMEO	KEY PERFORMANCE INDICATOR	METRICS	ANALYSIS			
			DATA	WHO ANALYSES	WHO APPLIES	FREQUENCY
Financial Indicators (1)	Debt to Assets	(Total debt / total assets) of n<(Total debt / total assets) of n-1< (Total debt / total assets) of n-2	Financial Accounting (Balance Sheet)	Financial and Administrative Manager	Financial and Administrative Manager	Annual
	Quick ratio	(Current assets / current liabilities) of n≥(Current assets / current liabilities) of n-1 ≥ (Current assets / current liabilities) of n-2	Financial Accounting (Balance Sheet)	Financial and Administrative Manager	Financial and Administrative Manager	Annual
	ROI	(Operating result/total assets)= economic risk*Return on sales*assets efficiency=(op.result/gross sales margin)*(gross sales margin/sales)*(sales/total assets)= X X of n ≥A of n-1≥A of n-2	Financial Accounting (Balance Sheet)	Financial and Administrative Manager	Financial and Administrative Manager	Annual
	Tangible fixed assets (€)	Tangible fixed assets n ≥ Tangible fixed assets n-1 ≥ Tangible fixed assets n-2	Financial Accounting (Balance Sheet)	Financial and Administrative Manager	Financial and Administrative Manager	Annual
	Tangible fixed assets (€)	Tangible fixed assets n ≥ Tangible fixed assets n-1 ≥ Tangible fixed assets n-2	Financial Accounting (Balance Sheet)	Financial and Administrative Manager	Financial and Administrative Manager	Annual

ESTOMEO	KEY PERFORMANCE INDICATOR	METRICS	ANALYSIS			
			DATA	WHO ANALYSES	WHO APPLIES	FREQUENCY
	Net Assets [Tangible fixed assets – Depreciation] (€)		Financial Accounting (Income Statement)	Financial and Administrative Manager	Financial and Administrative Manager	Annual
	Cash and equivalents (€)	Cash and equivalents n ≥ Cash and equivalents 2010 ≥ Cash and equivalents n-2	Financial Accounting (Balance Sheet)	Financial and Administrative Manager	Financial and Administrative Manager	Annual
	Funding (€)	Funding n < Funding n-1 < Funding n-2	Financial Accounting (Balance Sheet)	Financial and Administrative Manager	Financial and Administrative Manager	Annual
	Accounts payable (€)	Accounts payable n < Accounts payable n-1 < Accounts payable n-2	Financial Accounting (Balance Sheet)	Financial and Administrative Manager	Financial and Administrative	Annual
	Services rendered (€)	Services rendered n ≥ Services rendered n-1 ≥ Services rendered n-2	Financial Accounting (Income Statement)	Financial and Administrative Manager	Financial and Administrative Manager	Annual
	Purchases (€)			Financial and Administrative Manager	Financial and Administrative Manager	Annual
	Supplies and services (€)	Supplies and services n < Supplies and services n-1 < Supplies and services n-2	Financial Accounting (Income Statement)	Financial and Administrative Manager	Financial and Administrative Manager	Annual
	Wages (€) - Bonuses -Countervailing subsidies	Wages n < Wages n-1 < Wages n-2	Financial Accounting (Income Statement)	Financial and Administrative Manager	Financial and Administrative Manager	Annual
	Income before income taxes (€)	Income before taxes n ≥ Income before taxes n-1 ≥ Income before taxes n-2	Financial Accounting (Income Statement)	Financial and Administrative Manager	Financial and Administrative Manager	Annual
	Net profit (€)	Net profit n ≥ Net profit n-1 ≥ Net profit n-2	Financial Accounting (Income Statement)	Financial and Administrative Manager	Financial and Administrative Manager	Annual

ESTOMEO	KEY PERFORMANCE INDICATOR	METRICS	ANALYSIS			
			DATA	WHO ANALYSES	WHO APPLIES	FREQUENCY
Non financial indicators (2)	Number of new clients (clients)	Number of new patients n ≥ Number of new patients n-1 ≥ Number of new patients n-2	DentOral software	Financial and Administrative Manager	Receptionists/assistants	Annual/ Monthly
	Increase in the number of new Clients	Number of new clients n-1 – Number of new clients of n-2) / Number of new clients of n-2 (Number of new clients of n –Number of new clients n-1) / Number of new clients n-1	DentOral software	Financial and Administrative Manager	Receptionists/assistants	Annual/ Monthly
	Number of clients' complaints (clients)	Number of patient complaints n < Number of patient complaints n-1 < Number of patient complaints n-2	DentOral software	Financial and Administrative Manager	Receptionists/assistants	Annual Monthly