

POLITECNICO DI MILANO

Scuola di Ingegneria dei Sistemi



POLO TERRITORIALE DI COMO

Master of Science in Management Engineering

Designing Balanced Scorecards in Non-Profit Healthcare Organizations: The Experience of Ambulatório Pediátrico do Programa Einstein na Comunidade de Paraisópolis

Supervisor: Prof. Emanuele Lettieri

Master graduation thesis by: Gabriel Marcos Pasmanik Eisencraft

Student Id. Number 781202

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Always laugh when you can. It is cheap medicine.

(Lord Byron)

Acknowledgements

I think I had never realized that my mother had become a manager until the day when we talked on Skype and she suggested us to design a Balanced Scorecard for the ambulatory. It took me long to understand that all those calculations in the end of every month had only one meaning: my mother had become a manager, just like what I was studying to be someday.

This thesis is the result of a project initiated that day, but symbolizes the end of a cycle that started long before, in which many people participated playing different roles, and some of which deserve a special thank.

First of all, I would like to thank my parents for the support and opportunities they provided me with during my whole academic life. My father, for teaching me how to love the numbers since I was a small kid, when he used to read books for me, and my mother, a real medical encyclopaedia, and now a great Medical Coordinator, who helped me to turn the distant plan of designing a Balanced Scorecard for the ambulatory into a reality. To finish the crew, I also thank Gui and Bel, for cheering me up every time I was seeing them on my laptop screen.

And as good results do not come without hard working, I also thank my grandparents Zilda, Jayme, Branca, and Marcos, for the family they were able to form and keep, and for the values they transmitted along different generations. Besides, I could not leave Seu Abrahão out of this list, for inspiring my passion for travelling and facing the unknown.

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Abstract

During the past decades, scholars have been struggling to develop tools that can help managers to control organizations and improve performance. Among a variety of frameworks designed to fulfil this need, the Balanced Scorecard, by Kaplan and Norton, is definitely the most diffused one, having been implemented by a wide range of organizations in all kinds of different sectors.

With the intent of professionalizing its managerial activities, Ambulatório de Paraisópolis, the philanthropic branch of the most modern private hospital in Latin America, decided to design and implement a Performance Measurement System, to track its most important activities and support the massive growth of demand it has been facing across the last years.

The aim of this project is to design a Performance Measurement System that suits the needs of this ambulatory. The chosen framework was the Balanced Scorecard, which was developed with the help of the organization's collaborators through an Action Research methodology. This work describes all the steps performed in order to design and adapt the tool to a Non-Profit Organization, also considering the particularities of the Healthcare sector, and finishes with a discussion on the proposed solution and its implementation.

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List of abbreviations

| | |
|---------------|--|
| AMPA | Ambulatório de Paraisópolis |
| AR | Action Research |
| BPM | Business Performance Measurement |
| BSC | Balanced Scorecard |
| CLMS | Closed-Loop Management System |
| HIAE | Hospital Israelita Albert Einstein |
| IBGE | Instituto Brasileiro de Geografia e Estatística |
| IIEPAE | Instituto Israelita de Ensino e Pesquisa Albert Einstein |
| IIRSAE | Instituto Israelita de Responsabilidade Social Albert Einstein |
| IT | Information Technology |
| JCI | Joint Commission International |
| KPI | Key Performance Indicator |
| MDAE | Medicina Diagnóstica Albert Einstein |
| NPM | New Public Management |
| NPO | Non-Profit Organization |
| PECP | Programa Einstein na Comunidade de Paraisópolis |
| PMS | Performance Measurement System |
| SBIBAE | Sociedade Beneficente Israelita Brasileira Albert Einstein |
| SUS | Sistema Único de Saúde |
| UK | United Kingdom |
| USA | United States of America |
| WHO | World Health Organization |

1. Introduction

Managing organizations is not an easy task. It has never been an easy task and probably never will be. Every organization has its own peculiarities, deals with different profiles of customers, answers to different owners' needs, and is subject to different and constantly changing environmental conditions.

For decades, scholars have been struggling to develop new tools to support managers in this complicated task, some of which became very popular and successful, while others could not resist and fell by the wayside. Even among the ones which were able to stand out, it is difficult to assert whether they were successful for being robust and effective tools or if they are simply good frameworks that generate an organized reflection inside the organization, leading to better results.

The Balanced Scorecard (BSC), developed by Kaplan and Norton (1992), is one of these tools. With a well-structured framework, and the catchy motto of connecting the Performance Measurement Systems (PMSs) to strategy, this methodology was able to rapidly spread among different industries, cross physical borders, and dominate the field of Business Performance Measurement (BPM) in the world.

This tool, that has been largely studied and implemented by the traditional for-profit sector, now faces the new challenge of being reframed to the non-profit sector, following the trends of the New Public Management (NPM). With the professionalization of governmental and non-profit institutions, consecrated methods, such as the BSC, had to be adapted to a completely new reality, in which profit and creation of value for shareholders are not an ambition anymore, and satisfying customers is no longer a requirement to achieve success, but became the overarching mission.

Inserted in this context, Ambulatório de Paraisópolis (AMPA) is the philanthropic branch of Sociedade Beneficente Israelita Brasileira Albert Einstein (SBIBAE), the most modern private hospital in Latin America, and provides free medical assistance to young patients from a needy community in the city of São Paulo, Brazil. The project, which started in 1998 treating approximately 500 patients, has currently around 12.000 registered patients and is expanding to other neighbourhoods in underprivileged areas of the city. To support this massive growth

and keep the good quality of its services, the ambulatory is seeking efficient management tools, and decided to design a new PMS to track its most important activities.

The objective of this work is to design a PMS for the ambulatory. Among all the supportive frameworks discussed in the management literature, the BSC appeared as a natural solution, due to its successful history and a relatively flexible structure, which allowed the tool to be adapted in order to perfectly suit the needs of the studied organization. Action Research (AR), a methodology characterized by the cooperation between researchers and organizations requiring some kind of change, was chosen to perform this task, inviting AMPA's collaborators to actively participate in the BSC designing process.

The development of the BSC, which is fully described and discussed along this work, took approximately four months, involved more than 20 participants, utilized four questionnaires addressed to different groups inside the ambulatory, and was supported by auxiliary tools, such as Cognitive and Strategy Maps. After this period, the project returned to the ambulatory two main outcomes: a Strategy Map and a BSC. The first one connects the 11 critical success factors identified according to their cause and effect relation, explaining how they work together to fulfil the organizational mission. The second, the main product of this work, gathers a set of 20 indicators divided in five perspectives, informing the management and the team if the organization is able to follow the defined strategy, through the comparison of the results measured by the indicators with the targets set.

The next chapter presents the literature on the fields of BPM, PMS design, PMS implementation, and PMS application in Non-Profit Organizations and Healthcare institutions. The following chapters discuss the methodology applied for this work, present the results obtained, discuss these results and present the conclusions, as well as future steps to further develop the work.

2. Literature review

The literature on the field of Business Performance Measurement (BPM) is quite extensive and has been attracting the interest of managers and academics during the past decades (Marr & Schiuma, 2003; Glavan, 2011; Najmi, et al., 2012; Taticchi, et al., 2012). Methods such as the Balanced Scorecard (BSC) (Kaplan & Norton, 1992) are already well established and have been widely tested within the traditional manufacturing industry. According to a research carried by the American management-consulting firm Bain & Company, 47% of the studied companies were making use of the BSC in 2010, a number that was expected to grow to 63% in the following year (Rigby & Bilodeau, 2011). However, despite the popularity of the BSC, there are few studies concerning Non-Profit Organizations (NPOs), including the Healthcare sector (Grigoroudis, et al., 2012), maybe due to the difficulties in adapting the methodology to its particularities (Gurd & Gao, 2007).

Considering the facts mentioned above, the present literature review has been split in three main domains, namely Business Performance Measurement, which analyzes the role of performance measurement within organizations and describes some of the most traditional frameworks in the literature; Performance Measurement Systems (PMSs) applied to Healthcare sector, which also includes specific NPO literature; and complementary readings, regarding Business Strategy, Organizational Behaviour, Organizational Learning and other support fields.

2.1. Methodology

The present literature review has been developed in three steps, which are described in the following:

- 1. Business Performance Measurement:** the research on BPM started with the selection of literature review works on this field, in order to identify the most relevant papers and authors. Once they were identified, the articles were downloaded and read and a snowball sampling methodology was used to search for other papers related to the topic, providing a more in depth comprehension. Due to the relevance and diffusion of the BSC, this particular tool has received special attention. During this phase, both theoretical and empirical works have been studied, most of which coming from

countries with tradition in the management field (USA and UK), in order to give a complete vision of the proposed frameworks and their application, as well as the results obtained. The research on this topic was stopped when the author believed there was enough information for the development of this work.

- 2. Performance Measurement Systems applied to the Healthcare sector:** this second step was performed using a snowball sampling method focusing on empirical literature about the application of PMSs (particularly the BSC) in NPOs and the Healthcare sector. The aim of this phase was to define the state of the art for these tools in the interest area of the present work. To enrich the research and diversify the studied samples, articles from a wide range of origins were downloaded and read, so that the empirical analysis was not restricted to experiences in a few countries. Once again, the research was stopped after the author believed there was enough evidence to develop the work.
- 3. Complementary readings:** this third step consisted of the research for literature on supporting fields, such as Business Strategy, Organizational Behaviour, Organizational Learning, Intellectual Capital and New Public Management. This literature has been researched according to the needs felt by the author during the development of the work, without any formal methodological framework.

To find and download the articles, it was used Google Scholar search engine and two main databases, namely Emerald and ScienceDirect.

2.2. Descriptive analysis of the papers

This section is dedicated to a descriptive analysis of the 61 papers read to develop this work, considering their date of publication, origin of the authors, type of contribution, and the journals where they were taken from. The result of this analysis is the set of figures presented and commented in the following.

As we can observe in Figure 1, the studies were considerably well distributed over time, with a smaller proportion up to the middle of the 90s, when the theory of performance measurement was being developed. After that, we see two different picks, the first one, in the early 2000s and the second between 2008 and 2012. The first one is mainly dedicated to discuss the tools created to measure performance and their application in most traditional

fields. The second one, instead, is more focused on the application of the BSC in the non-profit and Healthcare sectors, especially through empirical studies.

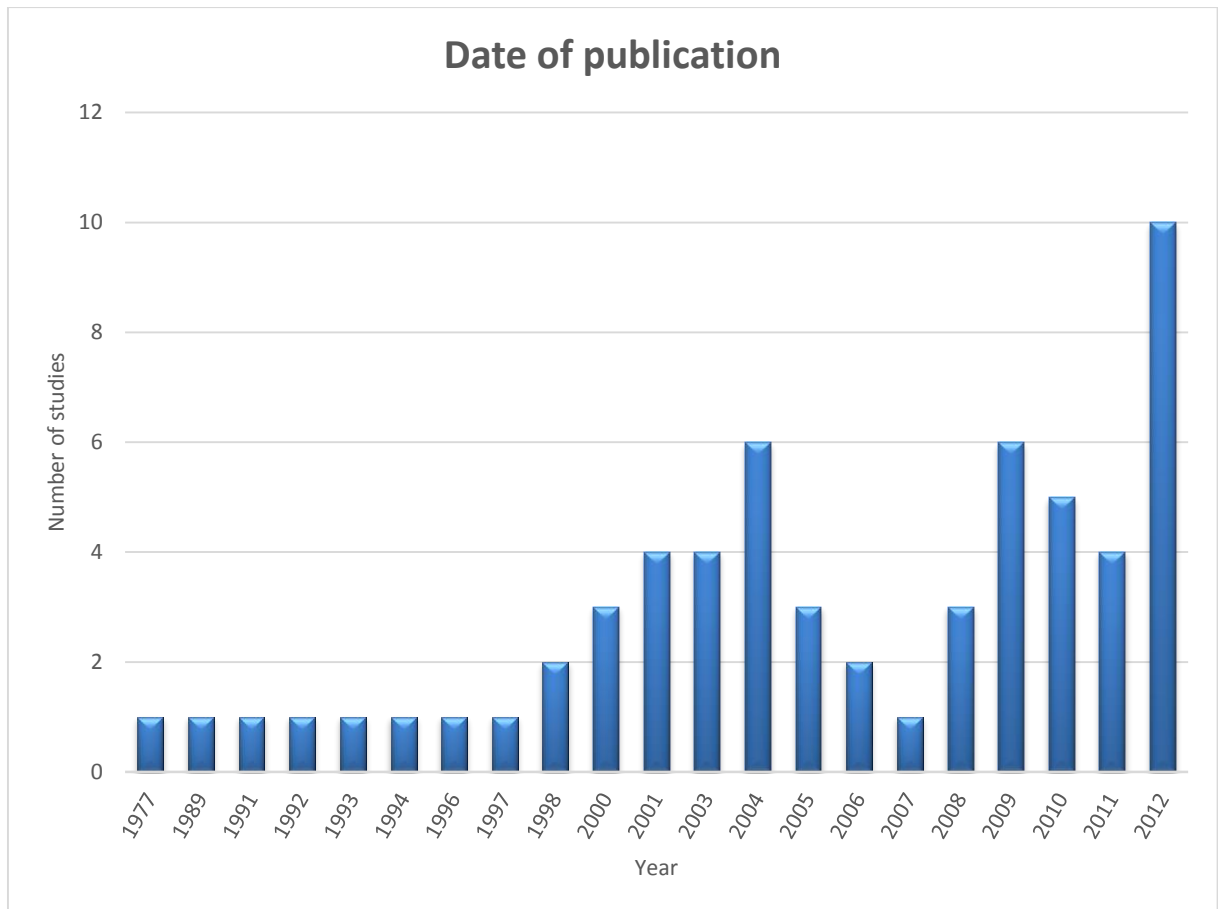


Figure 1 - Date of publication of the studies in the literature review

Figure 2 shows the huge influence of the USA and the UK among the analyzed studies. The two countries, alone, account for 44,3% of the articles read, without considering the articles with joint contribution with other countries. This result can be justified by the large contribution both countries have in the field of BPM and due to the fact that the most important authors are from there.

The authors which contributed the most are Robert S. Kaplan, David P. Norton and Andy Neely, who published together 19,7% of the articles read, most of them with theoretical contributions. The rest of the literature is vastly distributed among other authors. Aside from the three authors mentioned above, the only author who had more than two articles included in the literature review was Irvine Lapsley, with three studies.

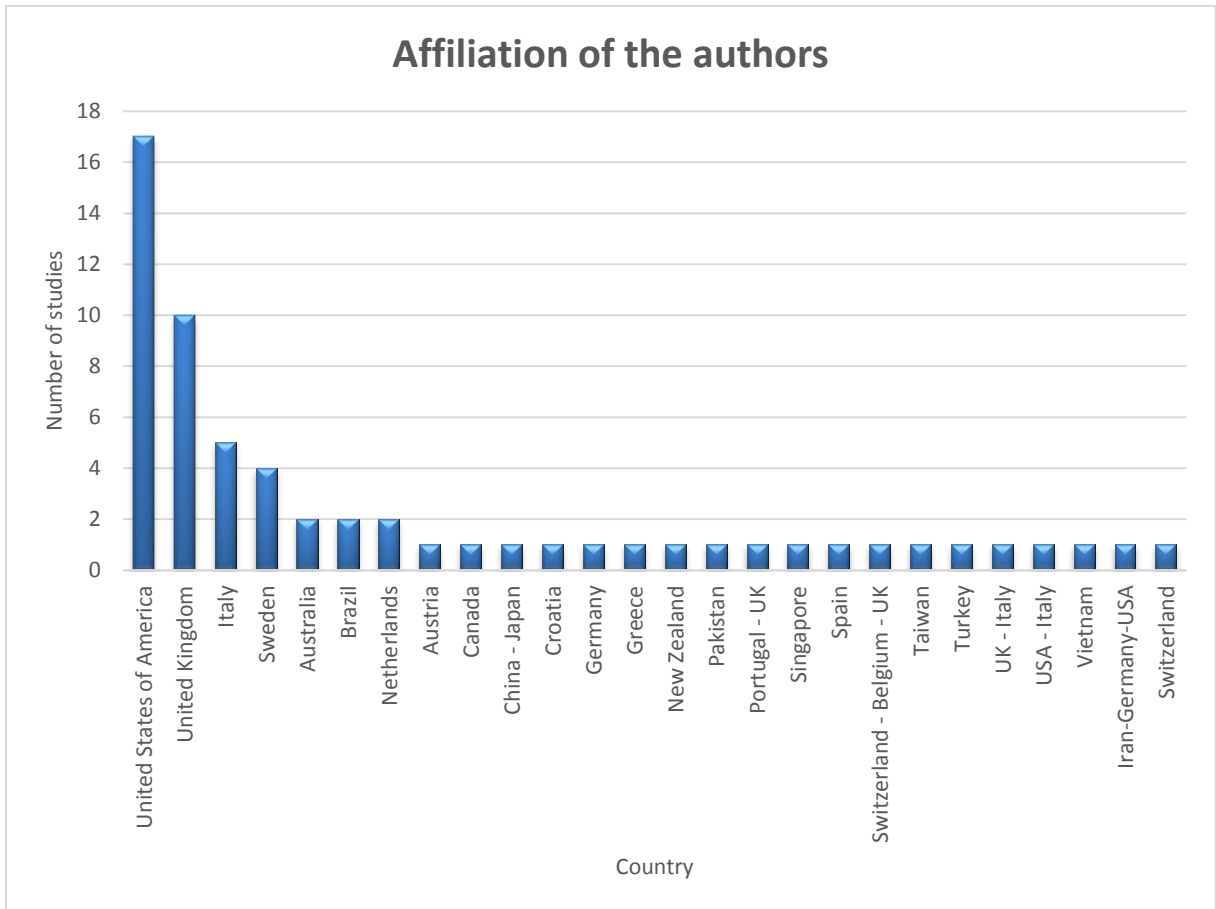


Figure 2 - Affiliation of the authors of the studies in the literature review

Assessing the distribution of studies by continent (Figure 3), we observe a predominance of European literature (49,2%), followed by North America (31,1%), continents that are responsible for most of the theory on performance measurement. Asia comes next, with a series of empirical studies in the field of Healthcare.

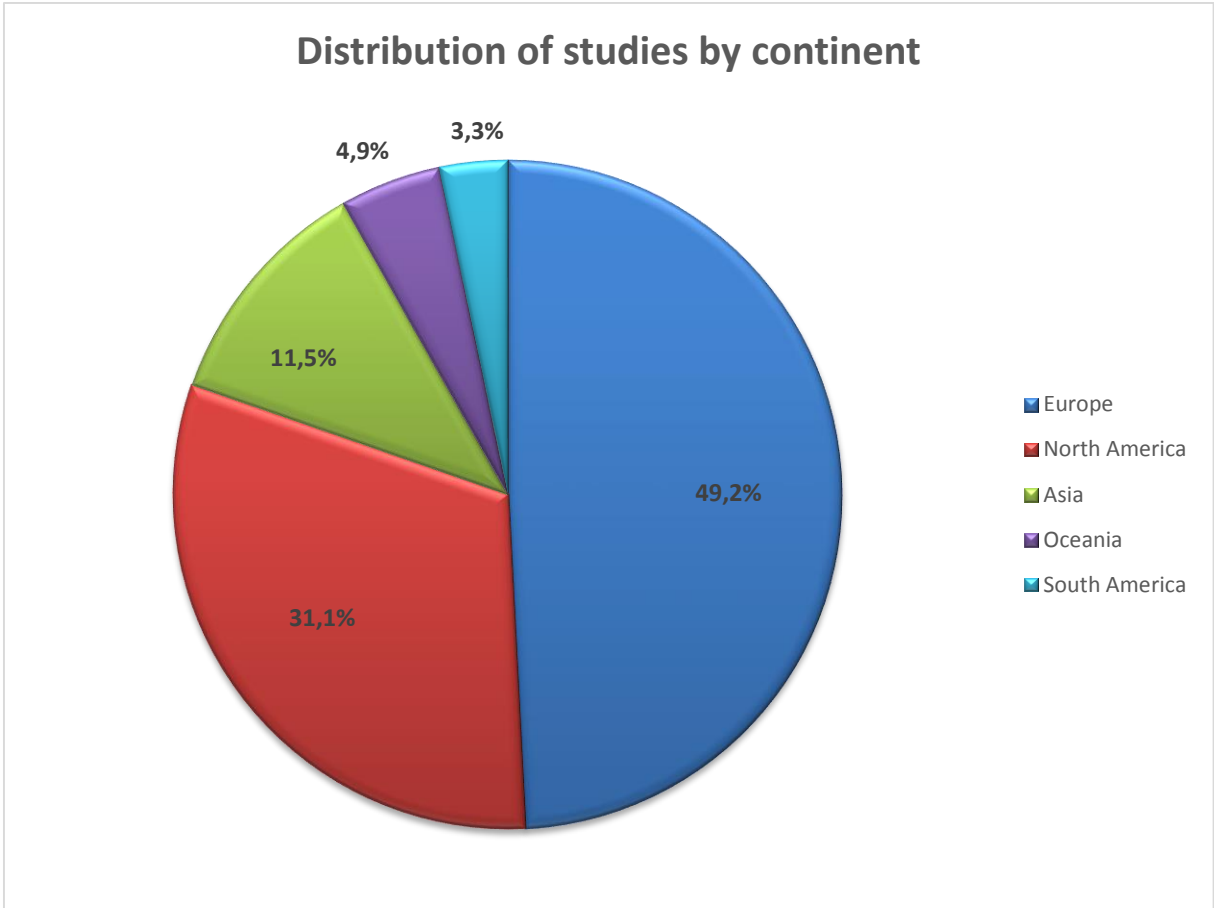


Figure 3 - Distribution of studies in the literature review by continent

Figure 4 shows the distribution of studies according to the type of contribution. As it can be observed, most of the articles (47,5%) are empirical, based on case studies in Healthcare institutions. This can be explained by the empirical nature of the Performance Measurement science. Theoretical studies represented 44,3% of the research, while 6,6% of it was based on literature reviews.

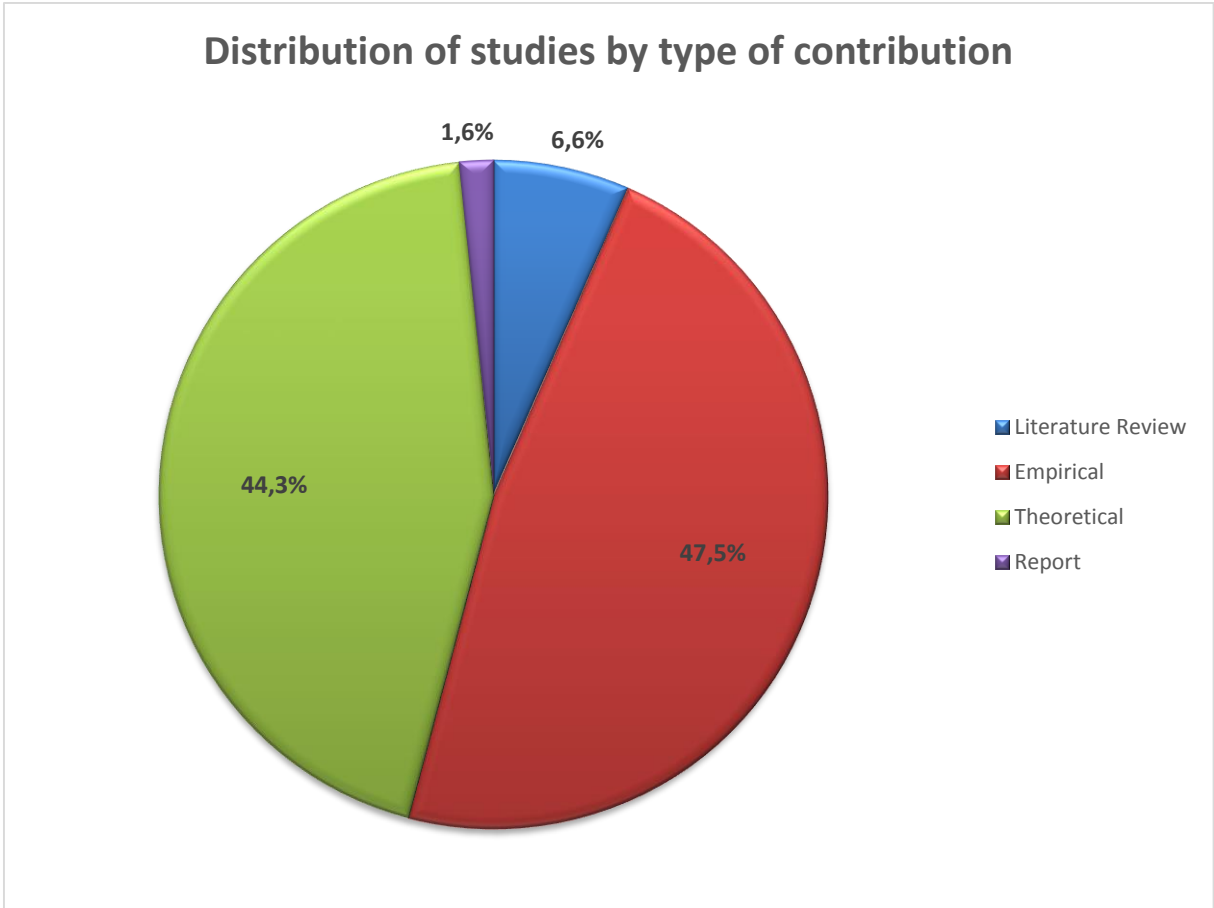


Figure 4 - Distribution of studies in the literature review by type of contribution

Figure 5 shows the distribution of studies according to the journals in which they were published. Observing the graph, it is possible to verify a predominance of Harvard Business Review (eight studies), which can be easily explained by the fact that it is the journal used by the most important authors in the field (Robert S. Kaplan and David P. Norton) for publishing their works. Likewise, the International Journal of Operations & Production Management comes in the second position with five studies, and is the journal chosen by Andy Neely for most of his publications. The other studies come from a wide variety of sources. It is also worth mentioning that from the 36 journals searched for the present literature review, 29 provided only a single paper.

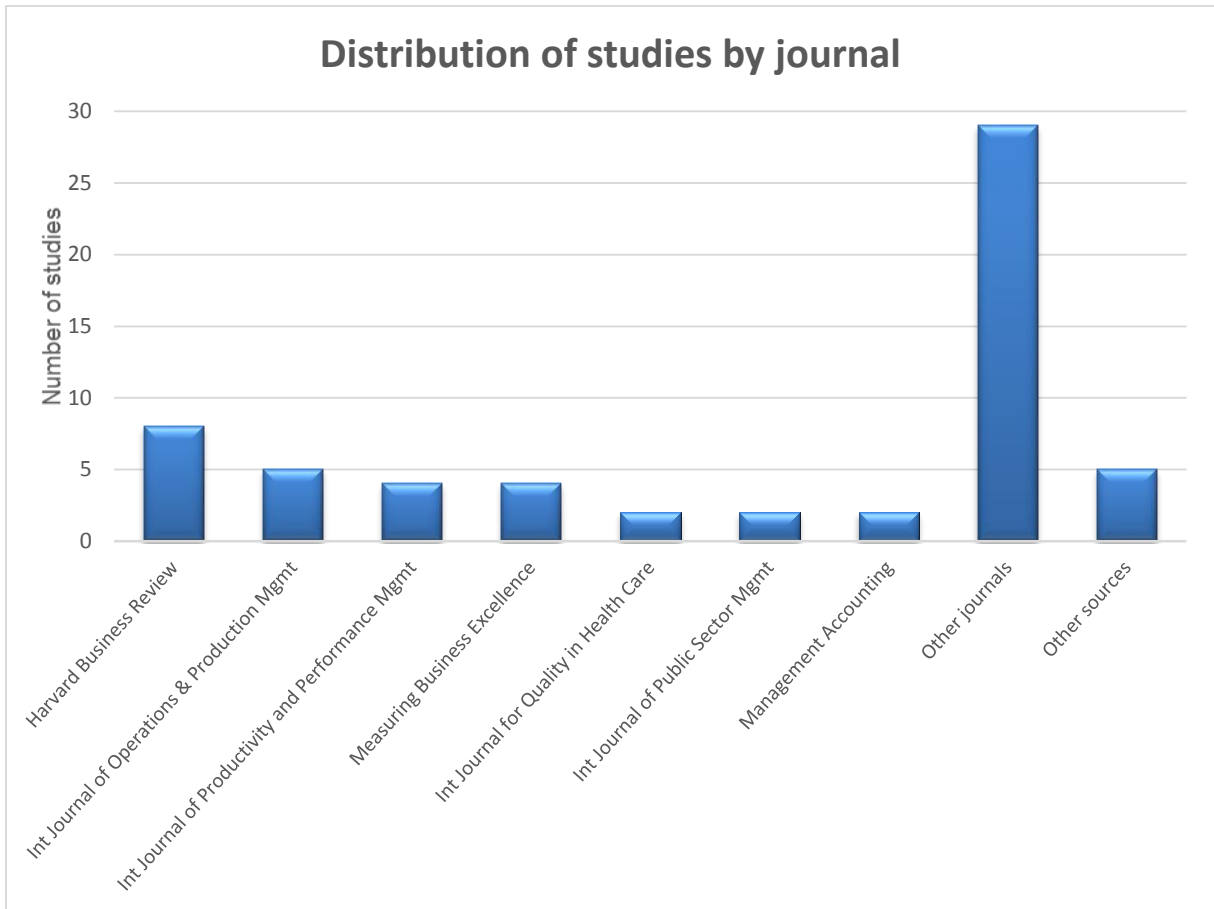


Figure 5 - Distribution of studies in the literature review by journal of origin

2.3. Content review

2.3.1. Scope

Business Performance Measurement (BPM) has received great attention and has been on the top of business agenda over the recent years (Glavan, 2011; Najmi, et al., 2012). It is far from being a new research area, but the new issues that have arisen in the last decades of the 20th century claimed for innovative solutions (Neely, 2005). Among the limitations identified in the existing Performance Measurement Systems (PMSs), the most significant were their unbalanced approach due to exclusive focus on financial indicators, the past-orientation of the measures, the incentive for short-term oriented actions, the internal rather than external focus, and the lack of connection between the indicators and the companies' strategy (Keegan, et al., 1989; Eccles, 1991; Kennerley & Neely, 2003; Tangen, 2004). These limitations are somehow linked, and can be explained by the fact that although financial indicators

provide information about an organization's performance, they are unable to identify how this performance was achieved or to point out ways to improve it (Kennerley & Neely, 2003).

According to Neely (2005), the evolution of the literature on BPM can be divided in five phases. The 1980s were marked by the identification of problems and their discussion, followed by a second phase of new proposed frameworks during the 1990s (Bourne, et al., 2000), such as the Balanced Scorecard (BSC) (Kaplan & Norton, 1992), the Skandia Navigator (Edvinsson, 1997), and the Performance Prism (Neely & Adams, 2000). The three next steps were the discussion on how to apply these methods, the empirical investigation and their theoretical validation (Neely, 2005).

According to Glavan (2011), the main reason for implementing a PMS is to improve organizational effectiveness. "Every organization should measure, monitor and analyze its performance. Performance is defined as an accomplishment of a given task measured against preset known standards of accuracy, completeness, cost and speed" (Glavan, 2011, p. 25). Taticchi, et al. (2010) believe that it is necessary to monitor and understand performance to compete in the continuously changing environment. Najmi, et al. (2012) also mention the constantly changing environment as a reason to frequently assess organizational performance in order to reach one of the main goals of a PMS, that is, improvement. Agostino and Arnaboldi (2012, p. 327) define PMS as "a set of mechanisms and processes used by an organization to identify key objects and support the implementation of actions, planning, measurement, control, rewarding and learning". Besides, PMSs must help organizations to integrate their activities across different managerial levels and functions, through the use of balanced measures that comprehend multiple levels (organizations, processes and people) (Glavan, 2011).

Nowadays, the field of BPM in the traditional industry is reasonably consolidated. It is generally agreed that well-defined measures can align strategy and actions through better communication systems within the organization (Glavan, 2011), and there seems to be a consensus on some consecrated tools that are widely applied. PMSs changed their focus from the financial perspective to non-financial perspectives (Taticchi, et al., 2010) and, more than simply controlling costs, they became a powerful tool to measure creation of value and manage businesses (De Toni & Tonchia, 2001). According to research evidence, companies that use integrated and balanced performance measurement systems tend to outperform

their competitors and achieve higher stock prices (Kennerley & Neely, 2003). Some of the frameworks developed in this context are described in the next section.

2.3.2. Performance measurement frameworks

This section aims at describing and comparing some of the proposed frameworks for performance measurement. In particular, the Balanced Scorecard (Kaplan & Norton, 1992; Kaplan & Norton, 1996), the Skandia Navigator (Edvinsson, 1997), the Performance Prism (Neely & Adams, 2000), and the Performance Planning Value Chain (Neely & Jarrar, 2004). It also describe tools that support the design of PMSs when clarifying the organizational strategy and translating it into measurable indicators, like Cognitive Maps (Lettieri, et al., 2008) and the Strategy Map (Kaplan & Norton, 2000).

Among all the performance measurement frameworks created in the last decades, the Balanced Scorecard (BSC) (Kaplan & Norton, 1992; Kaplan & Norton, 1996) is definitely the most difused and well-known. Created in 1992, the tool spread rapidly, crossing the boundaries of the USA to reach the whole business world (De Geuser, et al., 2009). According to a study performed by Bain & Company, the BSC was the most used framework to measure performance in the world in 2010, being the sixth most commonly used managerial tool. It was applied by 47% of the researched companies and the projection for 2011 was of an increase to 63% of them. The satisfaction with the tool was rated by managers with a score of 3,9 over 5,0 (Rigby & Bilodeau, 2011).

Nevertheless, this worldwide spread tool has not difused in the same way among companies in low-income countries. In their studies, Rabbani, et al. (2010) conclude that the lack of leadership commitment, cultural readiness, quality information systems, viable strategic plans and optimum resources are the main reasons why there is so little evidence about the BSC in these countries. Although Brazil has a considerable GDP and an extensive number of companies, it does not escape this rule. According to Frezatti, et al. (2010), in 2002, only 17% of medium and large companies were using the tool in the country, and 9% were under development or implementation phase, a low number when compared to its difusion in the USA and Europe. The explanation for such a small penetration would be the lack of knowledge about the tool and its potential benefits, as well as the difficult conditions to implement it.

The same study revealed that 15% of the companies did not even know about the existence of such tool, while 59% knew about it but did not use it.

According to Kaplan and Norton (1992), there is not a single measure capable of indicating the performance of a business, and this is the reason why there must be a set of balanced measures to accomplish this task. The rationale behind the BSC (Figure 6) is not to replace the traditional financial indicators, but rather to complement them (Kaplan & Norton, 1996) through the inclusion of three new perspectives, namely customer, internal processes, and innovation and learning.

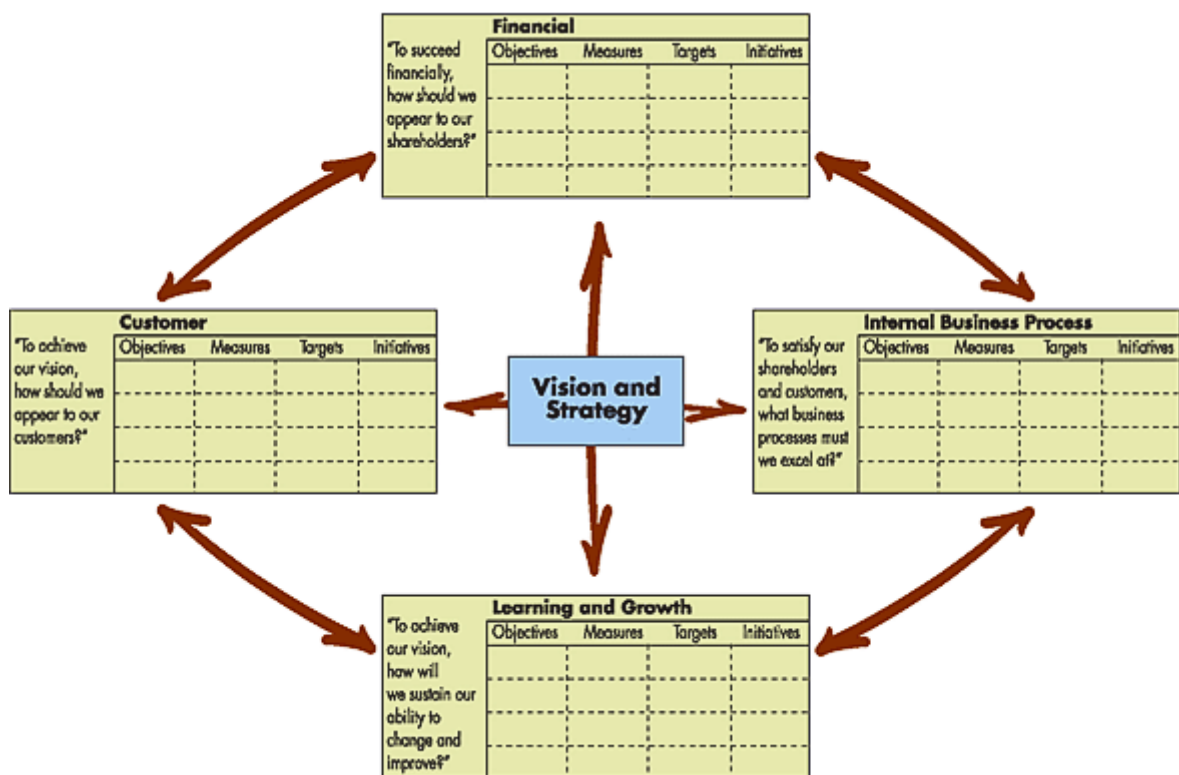


Figure 6 - Balanced Scorecard and its four perspectives (Source: Kaplan & Norton, 1996)

The customer perspective answers to the recent focus that companies have been placing on their clients, and helps managers to define indicators that are able to measure customer service. According to Kaplan and Norton (1992), customers tend to care about four different dimensions, namely time, quality, performance and service, and cost. The definition of indicators to measure these dimensions and the right treatment of the collected data are able to predict future financial performance in a way that past financial information cannot do (Neely & Najjar, 2006). Therefore, the management team must create metrics that are able to

communicate to their collaborators the importance of building and keeping good relationships with customers (Kaplan & Norton, 1993).

Customer satisfaction derives from excellence in processes, decisions and actions within the organization (Kaplan & Norton, 1992), measures which are included in the internal processes perspective of the BSC. In order to succeed, companies have to identify their core-competencies, i.e. the processes and competencies in which they must excel, and find the correct measures to evaluate their performances. The improvement of critical internal processes tends to generate better products and services to be delivered to customers, leading to consequent successful numbers in the customer perspective.

Finally, the third of these new perspectives measures the efforts of companies towards innovation, development and improvement. Considering that “employees’ skills, Information Technology (IT) systems, and organizational cultures are worth far more to many companies than their tangible assets” (Kaplan & Norton, 2004, p. 21), investments like training employees, improving the IT systems and innovation are key to companies that want to compete in the current dynamic market. In a nutshell, learning and growing are important because employees drive innovation and creativity throughout the organization. Hiring, training and retaining key employees are necessary activities to improve business processes, customer satisfaction, and eventually the financial performance (Senyigit, 2009). This perspective, considered by some authors as “the weakest link of the BSC” or “less than adequate to poor”, and ignored by many companies that implement the tool (Gurd & Gao, 2007), tries to answer the question “how to continue improving and creating value to customers?” (Kaplan & Norton, 1992).

As said before, financial measures are not eliminated, but complemented by these three perspectives proposed by the BSC. Thus, the financial perspective still plays an essential role, indicating whether company’s efforts are being effective and if the chosen strategy is actually generating the expected results (Kaplan & Norton, 1992). If the measures in the other perspectives achieve the defined goals and the chosen strategy is correct, the financial perspective will reflect this positive situation and define how the company looks to its shareholders.

The inclusion of these new perspectives in a PMS turns it into a multi-dimensional tool and uses non-financial indicators to create a more balanced system (Bourne, et al., 2000). Besides, it not only provides precious information about the future performance of the company, but also avoids sub-optimization, since managers are observing the obtained results in a variety of areas and guarantee that one of them is not sacrificed so that another can succeed (Tangen, 2004).

Aside from the inclusion of the new perspectives, the BSC presents another major innovation, that is the linkage between short-term actions and long-term strategy (Kaplan & Norton, 1996). The original four-step process designed by Kaplan and Norton (1996) starts with the clear definition of the organization's vision and strategy, goes through its communication up and down the company and the linkage between departmental and individual objectives, integrates business and financial plans and ends with a feedback that closes the cycle and enhances the organizational learning process through the reevaluation of the defined strategy. This cyclical process materializes Argyris' (1977) concept of double loop learning, which states that feedback should be used not only to restart the process, but also to confront the underlying assumptions before starting a new cycle. According to empirical evidence, a strategy that is well translated into operational terms and is able to align processes, services and competencies is critical to a successful BSC (De Geuser, et al., 2009). The BSC is more than a simple measurement system. It is a management system that helps organizations to clarify their vision and strategy and translate them into action through the selection of a limited number of critical indicators divided in the four perspectives (Kaplan & Norton, 1993; Grigoroudis, et al., 2012).

Another tool developed to complement the BSC is the Strategy Map (Kaplan & Norton, 2000), which explicitly identifies the cause and effect links between specific actions and the expected outcomes through a visual representation, what makes it a powerful tool to understand strategy (Marinho & Selig, 2009). This tool helps organizations to communicate their strategy and explain to employees how their tasks align with the company's goals. To build it, companies are forced to review their mission, vision and core values, from which they start mapping top down the factors that will lead them to successfully achieve their mission. Within this process, the company is able to identify the critical success factors in each of the BSC perspectives that will enable the execution of the strategy.

The Strategy Map is a particular tool derived from a more generic concept known as Cognitive Map. According to Lettieri, et al. (2008, p. 50) “cognition is relevant for management and above all for decision-making”. Khan and Quaddus (2004) define a Cognitive Map as concepts or variables which are connected by causal links followed by a sign that identifies if the relation is positive or negative, aiming at predicting the outcome of a complex problem by simply observing the result of the interaction among those concepts or variables. Similarly, Lettieri, et al. (2008) define Cognitive Maps as mental models that simplify complex systems, representing the main concepts and the relationship among them, helping people to understand past events and to interpret new events, supporting the decision-making process. Therefore, Cognitive Maps allow managers to understand the trade-offs they face and try to clarify the possible solutions. Indeed, “the value of a Cognitive Map is its ability to make explicit the various implicit linkages that any decision maker has in mind” (Lettieri, et al., 2008, p. 57).

Putting BSC and Strategy Map (or Cognitive Maps) to work together, managers are able to identify a few indicators for each perspective that will help the company to achieve its strategic vision. The Strategy Map, however, is not a tool to formulate strategies (Kaplan & Norton, 2000), but a tool to communicate the defined strategy all along the organization.

Despite the success and diffusion achieved by the BSC and the Strategy Map, the method presents some limitations. The tool is considered too general, being difficult to adapt to specific organizational cultures (Grigoroudis, et al., 2012). Neely and Adams (2000) argue that the framework does not consider relevant stakeholders, like suppliers and employees, and McCunn (1998) states that 70% of BSC implementations fail.

An alternative tool, similar to the BSC, was developed by the Swedish insurance and financial services company Skandia in the mid 1990s, giving special focus to organizations’ intellectual capital and knowledge assets (Savino, et al., 2012) in order to correct one of the main flaws of the BSC. According to Edvinsson (1997, p. 366), the Skandia Navigator (Figure 7) tries to answer to “the need for a more holistic and balanced perspective of how to develop and nurture service organizations and encourage growth”, while Savino, et al. (2012) state that it responds to the effort of developing a system to value intangible assets. According to Edvinsson (1997, p. 366) the focus on intellectual capital increases the effectiveness in managing and developing the company: “Intellectual capital becomes at least as important as

financial capital in providing truly sustainable earnings". Luthy (1998) states that intellectual capital is becoming an essential source for creation of economic wealth, with an increasing relative importance when compared to tangible assets. Moreover, he believes that while financial statements are a representation of the past, intellectual capital helps to understand the present and the future. The problem, however, is that investments in areas of human capital and IT reduce short-term profits, leading to a decrease in the organization's book value, so that managers tend not to care so much about them (Edvinsson, 1997).

Along its six focus areas, the Skandia Navigator seeks for a balance between financial and non-financial indicators, past, present and future, human resources and external environment (Edvinsson, 1997). The metaphor of navigation refers to a tool that guides organizations in managing intellectual capital (Luthy, 1998) and to the search for a new language for dynamic reporting (Edvinsson, 1997). The framework has the shape of a house, where the financial focus is the roof, customers and processes focus are the walls, renewal and development focus is the base and human focus is the soul, indicating the key role of active intelligence within an organization (Luthy, 1998). All of them are surrounded by the external environment. There should be no more than three or four indicators for each focus area, and they must be generic and numeric, being developed from the company's strategy or the critical success factors identified (Edvinsson, 1997). Besides, these indicators can be used for performance appraisal, as it is done in Skandia.

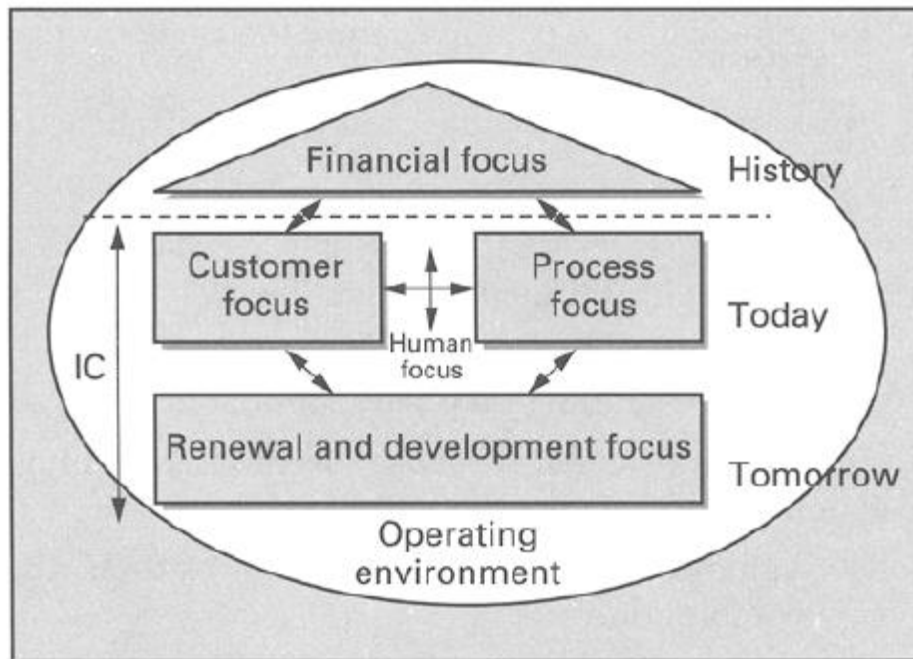


Figure 7 - Skandia Navigator and its six focus areas (Source: Edvinsson, 1997)

According to Edvinsson (1997), although the tool has many similarities with the BSC, its diverse layout amplifies the renewal and development perspective, considered the base for sustainability, includes the operating environment and places the human focus in the centre. Marinho and Selig (2009) also compare both tools, and conclude that the BSC uses a more rational approach when selecting the indicators, generating fewer measures than the Skandia Navigator. Besides, they state that while the Skandia Navigator publishes its results through formal reports distributed to employees, the BSC unfolds its indicators through all the organization, including tactical and operational levels. They also reinforce that the BSC indicators have a managerial control bias, while the Skandia Navigator focuses more on the organizational competences. Agostino, et al. (2012) say that this approach, which highlights the intellectual capital, provides a more complete picture of the resources available to organizations, but lacks on information about transformational processes, giving little importance to issues like efficiency and productivity.

Another framework created to offer an alternative to the BSC was the Performance Prism (Figure 8) (Neely & Adams, 2000), a three dimensional model which considers five different facets of a prism. According to this method, the PMS construction must start from the definition of the factors that lead to stakeholders' satisfaction rather than the definition of the strategy. The strategy, in turn, comes next to indicate how the wants and needs of the

stakeholders will be satisfied. The third step is the definition of processes in order to execute the strategy, followed by the capabilities needed to successfully perform the processes. The model ends with the definition of the contributions expected from stakeholders in order to maintain and develop these capabilities.

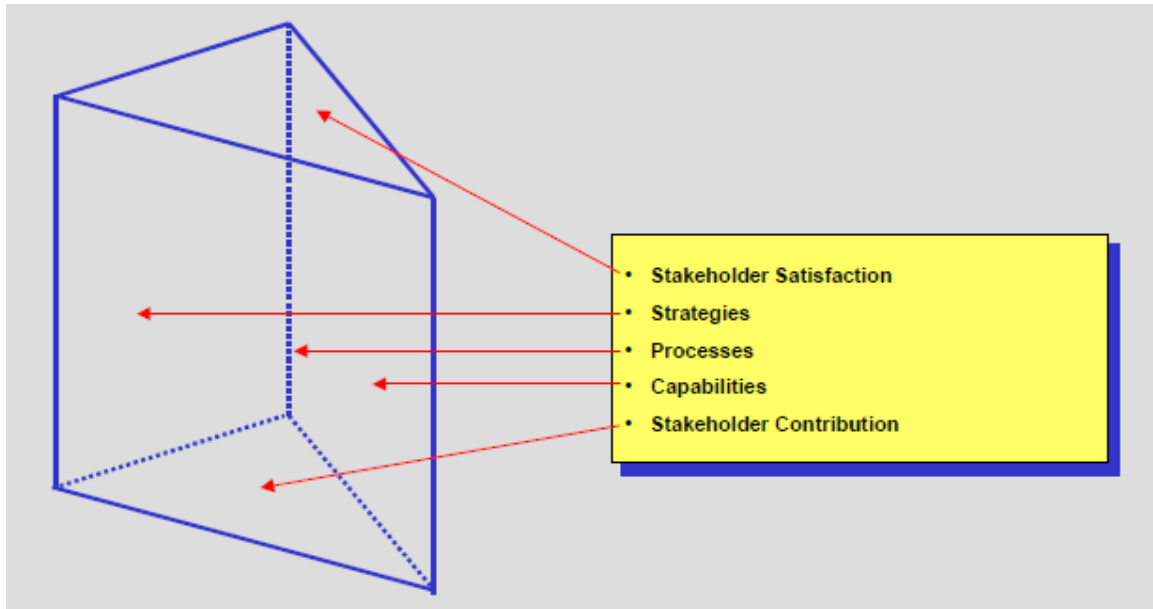


Figure 8 - Performance Prism and its five facets (Source: Neely & Adams, 2000)

This framework is more comprehensive than the BSC, considering more stakeholders (employees, suppliers, partners and intermediaries), and it also questions the existing strategy before selecting the measures (Tangen, 2004; Marinho & Selig, 2009). According to Najmi, et al. (2012), it is more suitable for organizations that have the creation of value to stakeholders as a first priority, while Marinho and Selig (2009) affirm that in the way the BSC was designed it is more oriented to create value for shareholders. Nevertheless, it says little about how the performance measures will be performed and does not consider the PMSs that companies may be currently using (Tangen, 2004). Besides, it lacks on a review procedure to maintain the effectiveness and the relevance of the system (Najmi, et al., 2012).

A fourth tool developed to measure performance is the Performance Planning Value Chain (Figure 9) (Neely & Jarrar, 2004), which consists of six steps to extract value from data in order to enhance the decision-making process. It starts with the identification of the gaps in performance that need identification, then goes to the collection of data to close the gap, followed by an analysis and interpretation of the collected data. The next step is to

communicate the insights gained from the data interpretation to finally take decisions and effective actions.

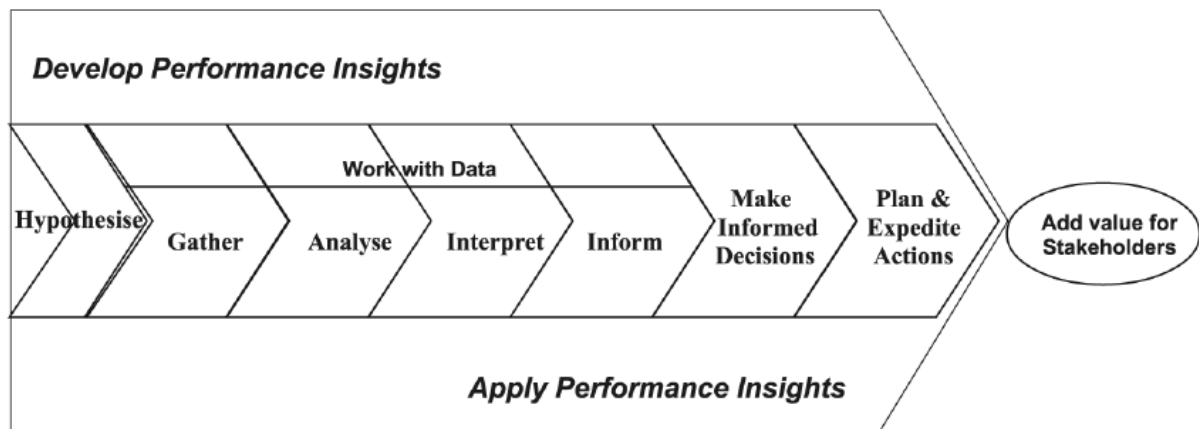


Figure 9 - Performance Planning Value Chain (Source: Neely & Jarrar, 2004)

Many other tools were created with the intention of measuring performance. Among others, Tangen (2004) mentions:

- **Sink and Tuttle Model:** defines the performance of a company as the result of the relation between seven criteria, namely effectiveness, efficiency, quality, productivity, quality of work life, innovation and profitability/budgetability.
- **Performance Pyramid:** developed in 1992, this model creates a linkage between performance measures and hierarchical levels in the company.
- **Theory of Constraints:** a methodology created in 1990, focusing mainly on production planning and scheduling, and aiming at reducing the total number of indicators in the PMS. It is an attempt to simplify the information overload existing in large organizations, making it easier to access and comprehend. It can be considered too simplistic, however.
- **Medori and Steeple's Framework:** this integrated framework created in 2000 allows users to design a new PMS or to enhance an existing one through a six steps process.

Each of them have their benefits and limitations, but none of them has been as successful as the BSC.

A comparison among these proposed frameworks leads to the conclusion that there is no major theoretical divergences between the BSC and the other systems, but it has obtained better results in the comprehension and translation of the strategy into operational actions

(Marinho & Selig, 2009). In their study, De Geuser, et al. (2009) conclude that the BSC positively helps to improve organizations' performance. Nevertheless, they could not answer the question whether this help came from the formal use of the tool or from the informal and interactive debate when designing, implementing and using it. The fact is that the BSC showed itself more efficient than other PMSs even though it is not theoretically original (Marinho & Selig, 2009) and there is no evidence of how much or how it helps organizations to increase their performance (De Geuser, et al., 2009). Therefore, this literature review will continue with an analysis of the implementation process of this particular tool.

2.3.3. Implementation process for the Balanced Scorecard

In his article, McCunn (1998) states that the BSC should not be implemented if executives do not know exactly what they expect to achieve, and emphasizes that 70% of BSC implementations fail. Although it may seem obvious, it is worth mentioning that every measurement activity incurs costs to both implement and maintain (Glavan, 2011).

According to Kaplan and Norton (2008), the BSC is a tool to perform the second stage of a larger process, which they called Closed-Loop Management System (CLMS, Figure 10). The main objective of this model is to guide managers from the strategy development up to its execution and adaptation (Zhang, et al., 2012). It consists of five stages (Kaplan & Norton, 2008), starting from the development of the strategy, in which executives are supposed to define the company's mission, vision, and core values, and then make a strategic analysis of the internal and external situation (using consecrated models like Michael Porter's Five Forces and Value Chain, PEST Analysis, and SWOT Matrix). Once the business is well defined and the environment is mapped, executives can finally formulate the strategy which the company should follow to achieve success.

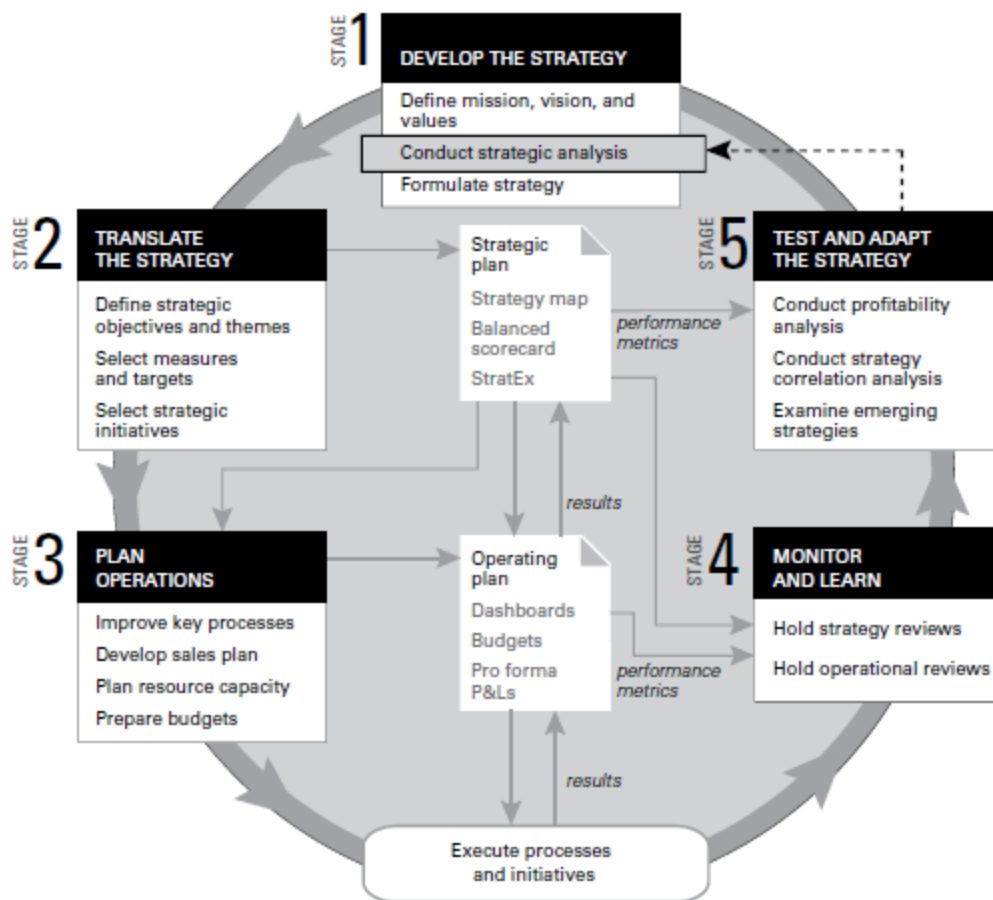


Figure 10 - Closed-Loop Management System and its five stages (Source: Kaplan & Norton, 2008)

Defining and transmitting the mission, vision, and core values of a company is not an easy task, but companies that are able to create a culture where employees have internalized them are prone to succeed (Kaplan & Norton, 2004). Tuan (2012, p. 288) says that organizational culture “is a spirit cultivated by the shared values of the organizational members”, and this harmony results in confidence, comfort and trust. A culture of leadership and open reporting has high impact on the success of a BSC implementation. Grigoroudis, et al. (2012) go beyond, and affirm that the participation of the personnel in the revisions of the BSC is the most critical issue for the successful implementation of the tool. According to them, the staff should share the vision of the company, rather than simply being aware of it, which goes along with Senyigit’s statement (2009) that the inclusion of all departments when planning and developing the BSC helps to get employees’ support towards the performance measurement system.

The second step of the CLMS (Kaplan & Norton, 2008) consists of the translation of the formulated strategy into objectives and measures that can be communicated to employees all around the company, and the Strategy Map and the BSC play a key role to accomplish this task. The first is able to create a chain of cause and effect relationships that can be easily visualized, while the second helps to translate the critical success factors identified into a balanced set of measurable indicators.

The third stage consists of the planning of the operations in order to deploy the strategy, followed by the monitoring of the defined indicators (fourth stage) and the reevaluation of the current strategy (fifth stage).

The implementation of the BSC itself involves a series of steps and choices to be made. The way in which the BSC will be implemented in practice depends on a variety of factors, like environment, size of the company, technology, culture and strategy (Agostino & Arnaboldi, 2012). However, before effectively implementing the BSC, some decisions on design features must be made. Agostino and Arnaboldi (2012) identify four design dimensions: definition of the Key Performance Indicators (KPIs), cascading, target setting and reward system.

The definition of the KPIs for a BSC may vary both in terms of quantity and in terms of balance between financial and non-financial indicators (Agostino & Arnaboldi, 2012). De Toni and Tonchia (2001) classify indicators according to their nature, dividing them in cost performance indicators (regarding production costs and productivity) and non-cost performance indicators (regarding time, flexibility and quality). The number of indicators, in turn, may vary from very few to dozens. In their research within the Healthcare sector, Gurd and Gao (2007) found a range from 9 to 44 measures in the BSCs of the 22 organizations studied by them, which included hospital systems, hospitals, a psychiatric centre, hospital departments, national Healthcare systems, and local governments.

The second decision in terms of design dimensions (Agostino & Arnaboldi, 2012) is about cascading, a choice of how the BSC will be deployed across the whole organizational hierarchy. It refers to whether the organization will have a unique scorecard or specific scorecards to each business unit or hierarchic level, in order to align the actions towards the company's vision.

The third choice, regarding the target setting, has reached a considerable consensus among scholars (Kaplan & Norton, 1996; Gauld, et al., 2011; Agostino & Arnaboldi, 2012), most of which agree that the organization's high-level strategic objectives have to be translated into specific goals and measures for operating units and individuals (Kaplan & Norton, 1996). The way these targets will be addressed, however, may vary according to the managers' decisions. Kaplan and Norton (1996) mention an oil company in which individuals are encouraged to set target for themselves, rather than the usual approach when managers are responsible for this activity, while Agostino and Arnaboldi (2012) discuss the difference between explicit and implicit targets and their implications. In any case, Najmi, et al. (2012) state that targets must be always challenging in order to foster employees' motivation, but realistic at the same time. It is also very important to develop a communication system in order to express the success or failure in the defined goals, or even warning systems that continuously send feedback on results, so that actions to improve the performance in the detected area can be rapidly taken (Chen, et al., 2012). Tools like "signal lights" (green, yellow and red lights) or other colour codes are common to perform this task.

The fourth and last dimension of the design of a BSC refers to the linkage between measures and reward systems (Agostino & Arnaboldi, 2012). Unlike the previous dimension, scholars have different opinions relating to this choice. Kaplan and Norton (1996) argue that some companies believe that this connection may work as a powerful lever, though they admit that this linkage carries risks. Senyigit (2009) believes that linking performance evaluation to the BSC measures is the biggest motivation for employee input. In the same path, Agostino and Arnaboldi (2012) affirm that reward may be fundamental to motivate employees, but alert for the fact that it may also generate controversial effects and dysfunctional behaviour, like the so called denominator management, when managers manipulate their assets in order to increase indicators such as Return on Assets. As stated by Chua (2009), "fixation with measurement makes measurement an end even though it was originally intended to be a means" (Chua, 2009, p. 38). Therefore, managers have to be careful not to turn a tool that should improve performance into a "futile numbers game". This goes along with the idea of Neely and Adams (2000) that employees tend to adopt "gaming tactics" to achieve their targets. Measures are guidelines on how employees are supposed to behave (Neely & Adams,

2000; Tuan, 2012). Therefore, the measures must be consistent with the company's strategy in order to assure that employees will act accordingly.

After designing the BSC, the next step is its implementation. In their research, Bourne, et al. (2000) identified three main obstacles to the implementation of performance measures: resistance to measurement, IT infrastructure issues, and the commitment of top management with the initiative. Resistance to measurement comes from the idea of redistribution of power, which may not interest all individuals. In order to tackle this issue, managers have to develop a culture of open reporting to generate confidence, comfort and trust, and leaders must provide their subordinates with the necessary resources and help them to achieve their goals (Tuan, 2012). To overcome the second issue, the IT infrastructure, there must be a special focus on information systems to guarantee that they are suitable to the designed PMS. This means investing on integrated systems that are able to achieve all levels in the company, providing employees with information about their performance and alerting for undesirable results. Finally, although the implementation process of the BSC may take long, senior management commitment is vital to do it successfully (Bourne, et al., 2000), a belief with which De Geuser, et al. (2009) disagree when state that top managers support and participation of all employees are not prerequisites to succeed.

Still related to the choices for the implementation of BSCs, there are at least two ways of classifying the tool. The first one concerns to which extension the tool is considering the organizational strategy, while the second is related to how the obtained measures will be used to solve problems.

Concerning the relation to strategy, the literature defines three evolutionary stages of the BSC (Gurd & Gao, 2007; De Geuser, et al., 2009; Greiling, 2010). In the first generation indicators are divided in the four perspectives, but there is no cause and effect relation among them, something that will appear just in the second generation, when the measures become clearly connected to strategic objectives. The third and last type of BSCs additionally includes targets, action plans and links results to incentives.

The second choice to be made when implementing the BSC is related to how managers will deal with the obtained measures. In this sense, Agostino and Arnaboldi (2012) define two kinds of scorecards, namely Diagnostic BSC and Interactive BSC. The first one compares the

measures obtained after the plans are implemented to the objectives set in the beginning of a period. Corrective actions are taken only when needed, so that managers get involved only when results deviate from the expected targets. This approach is also called management-by-exception. The second approach instead refers to Argyris' concept of double-loop learning (Argyris, 1977), when the obtained results are discussed and the designed strategy is constantly reviewed, without the need of an exceptional event. It assumes active participation of top managers and face-to-face dialogue with subordinates, generating a more organic environment.

The two models described above introduce the last topic about BSC implementation, that is the feedback and learning (Kaplan & Norton, 1996) and the updating process (Bourne, et al., 2000), a subject which is not so widely discussed in the literature, even though it is generally accepted as an essential step to the successful implementation of PMS tools (Najmi, et al., 2012). According to Bourne, et al. (2000), there must be a regular process to confront measures and strategic goals to keep the PMS always aligned with the defined strategy. Chan (2009) says that the BSC should be reviewed regularly to incorporate new challenges and changes in the environment, so that it can work as an effective strategic management tool. This mechanism of gathering feedback to test the initial hypotheses on which strategy was based and make the necessary adjustments to the PMS is what Kaplan and Norton (1996) call Strategic Learning. The updating process, however, is not a simple redesign of the measurement system, but must take into consideration the organizational context and how it has changed in the dynamic environment, something that few organizations actually do (Kennerley & Neely, 2003). To guarantee the success of the updating of the PMS, Kennerley and Neely (2003) propose a framework consisting of three activities (reflection on existing PMS, its modification to realign it to the strategy, and deployment of the updated PMS) to be performed over four different dynamic factors (processes, people, systems, and culture), closing the cyclical process of the BSC implementation.

The continuous processes of updating the PMS, however, is not an unanimity among scholars. Najmi, et al. (2012) claim that the set of measures should be reviewed in an event-based process, which happens exclusively under certain conditions, like the modification of the business strategy, a stakeholder's new requirement, when one of the selected KPIs is

perceived as unuseful or after the implementation of a new IT system, which recalls to the concept of “management by exception” already mentioned before.

2.3.4. Balanced Scorecard in Non-Profit Organizations

Non-Profit Organizations (NPOs) are of major interest for many scholars due to their distinctive nature, the high complexity of their activities, and the different relationship they have with their environment (Helmig, et al., 2004). Their social orientation is the main difference from typical for-profit organizations (Grigoroudis, et al., 2012). Their existence is normally attributed to a market or governmental failure to provide specific services, which is perceived by an individual or a group. Maybe the deviation of their economic model from the standard can explain the reason why it took so long for these agents to adopt from the simplest financial metrics (Urrutia & Eriksen, 2005) up to complex tools like the BSC, something that happened quite later than for traditional for-profit companies (Greiling, 2010).

The adoption of this kind of tools was most probably motivated by a movement called New Public Management (NPM). The NPM was an initiative that started in the 1980s, in which governments began to apply tools that were already used in the private sector in order to modernize and transform the public sector (Lapsley, 2009). The rationale behind this initiative, which achieved global significance, was the belief that management was more important to change the public sector than policy options, and that the use private sector accounting and management technologies could increase the efficiency of public sector. Following this trend, and empowered by these new tools (Chan, 2009), NPOs started to face a dominant challenge, moving from the usual amateur administration to professional management (Helmig, et al., 2004).

According to Euske (2003), one of the problems of organizational changes is that management and employees have difficulties in realizing that the issues which they face are actually similar to the ones faced by other organizations, and that the same solutions applied by those organizations could solve their own issues. Greiling (2010), however, affirms that the implementation of BSCs in these organizations is as much or even more beneficial than in for-profit organizations, maximizing the benefits delivered to society, and several authors believe that there are no reasons not to apply the tool in this sector (Kaplan, 2001; Urrutia & Eriksen, 2005; Grigoroudis, et al., 2012).

The research concerning the implementation of the BSC in NPOs has already been through two stages (Greiling, 2010). In a first moment, most of the scholars were discussing how to adapt the tool to this particular context, coming up with some modifications that will be mentioned later in this text. The second generation of studies relates to different approaches towards specific areas of acting. There are numerous NPOs that have already experienced the BSC, including non-profit hospitals, elderly associations, youth organizations, sport clubs, and religious groups, just to mention a few. Even though there are already many empirical studies of organizations that applied the scorecard, there is still a lack of literature comparing the implementation of this tool across different organizations. PMSs are tools which aim at improving efficiency and effectiveness, rather than identifying individual failures. Cross-studies like the one realized by Chen, et al. (2006) comparing one Chinese and one Japanese public hospitals help to identify opportunities to improve organizational performance.

Although this is a relatively new field, there are already some suggestions on how to adapt the BSC to this particular context. Kaplan (2001, p. 360) believes that NPOs “should consider placing an overarching mission objective at the top of their scorecard”, reflecting their long-term objective. This mission represents the accountability between the agent and the society, an explanation of the reason why the organization exists. Instead of an objective, the financial perspective represents a constraint that, if well managed, will enable the other perspectives (Kaplan, 2001; Urrutia & Eriksen, 2005). Grigoroudis, et al. (2012) say that the method should consider particularities of the sector, focusing on mission and passion rather than profit or competition. Moreover, Kaplan (2001) proposes an expansion of the concept of customer, distinguishing between financiers (the ones who pay for the service) and constituents (the ones who receive the service) and places this perspective at the top of the new framework, moving the financial perspective to the bottom. The BSC, then, becomes considerably different from the usual one, and can be seen in Figure 11.

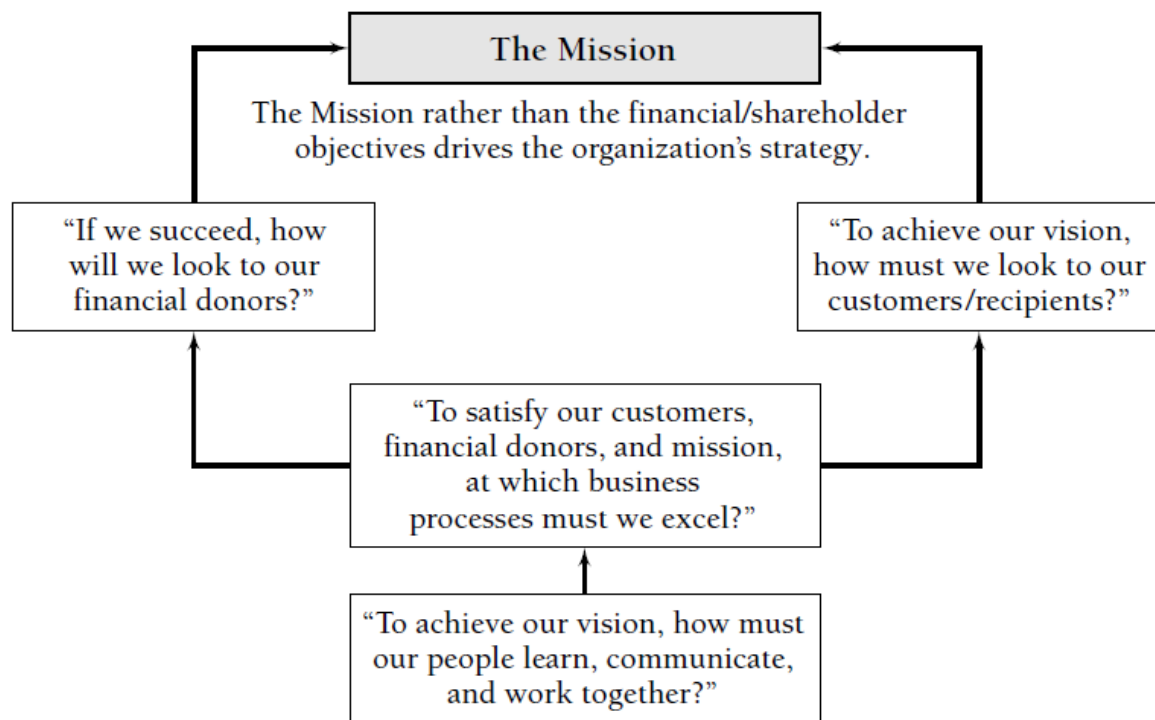


Figure 11 - Balanced Scorecard adapted to Non-Profit Organizations (Source: Kaplan, 2001)

While Kaplan (2001) argues that NPOs' success should be measured by how effectively and efficiently they meet the needs of their constituencies, Euske (2003) affirms that customers are interested in value, not caring about efficiency. Indeed, Kaplan seems to be contradictory since he himself states that "financial considerations can play an enabling or constraining role but will rarely be the primary objective" (Kaplan, 2001, p. 353).

Still concerning adaptations for the non-profit context, it is believed that the scorecard should not be restricted by the four original dimensions (Grigoroudis, et al., 2012). In her article, Greiling (2010) discusses the use of more than four perspectives. According to her empirical research among German NPOs, many of them use up to six perspectives in their BSCs. Surprisingly, almost all the researched organizations used top-down approach to design the scorecard, and just a few implemented Kaplan's concept of overarching objective, both behaviours that go against the theory proposed. Linking reward systems to performance is quite controversial and Greiling found adverse reactions to these incentive systems.

As expected, the implementation of the BSC in the non-profit context brings a series of benefits. The quantification and measurement of strategy helps NPOs to reduce or even eliminate the ambiguity and confusion about their objectives and methods, leading them to

focus on the pursuit of their mission (Kaplan, 2001). The use of a consecrated tool also increases the trust in management and the legitimacy of major financial resource providers (Greiling, 2010). Furthermore, the gain in efficiency may lead to the increase in quality of the provided services, but Euske (2003) highlights the fact that economies of scale may decrease responsiveness to societal needs.

Some of the difficulties found to use this tool for NPOs lie on the fact that the definition of goals for NPOs is far more complex than for for-profit organizations (Helmig, et al., 2004). Many NPOs do not have a clear objective and strategy, have a variety of stakeholders, depend on multiple revenue sources (Greiling, 2010), and have greater difficulties to achieve focus and align efforts to the strategy because many employees accept below-market compensation given that they believe in the organization's mission (Kaplan, 2001).

2.3.5. Balanced Scorecard in the Healthcare sector

"Healthcare as it is organized today is not sustainable" (Mohrman, et al., 2012, p. 2). Facing continuously increasing costs mainly due to an ageing population, increase of chronic diseases and the high investments to develop new technologies, the Healthcare sector has an urgent need to become more efficient and effective (Mohrman, et al., 2012). In particular, developing nations face an even more complicated challenge, having to provide care to rapidly growing populations with increasing expectations for good services and quality of life. Amid these challenges, one question is always under discussion: who should pay for Healthcare? Is it an individual issue or a social matter? (Mohrman, et al., 2012).

This multidimensional challenge brings up the notion of triple bottom line, according to which improvements should be sought in economic, social and environmental dimensions without letting one of these perspectives compromise the others (Mohrman, et al., 2012). In his work, Worley (2012) states that, more than financial consequences, Healthcare institutions are responsible for a series of social and environmental outcomes, both good and ill. Therefore, it is essential for modern Healthcare organizations to be sustainable and agile, always defining clear short- and long-term strategies to maintain a sustainable-oriented and change-friendly identity consisting of internal values and external brand image reputation to achieve the triple bottom line objective.

In this context, Kaplan and Porter defend that it is possible to improve results and drive down costs at the same time by measuring outcomes systematically while controlling costs assisted by managerial systems focused on goal setting, measurement and feedback (Mohrman, et al., 2012). Organizations must be designed aligning strategy, structure, systems and human resources (Worley, 2012), integrating the currently fragmented system in which organization is based on specialized medical disciplines and episodic care rather than coordinated treatment (Mohrman, et al., 2012).

Performance measurement is far from being a new activity in the Healthcare industry, which has a long tradition of extensive and detailed measures (Gurd & Gao, 2007). According to Urrutia and Eriksen (2005), the classic indicators used by institutions in this field could be split in three groups: health indicators (consisting mainly of rates of mortality, diseases etc.), service utilization (medical consultations, surgical interventions etc.), and hospital resources (available beds, occupation, hospital stays etc.). These indicators, however, were not enough to cover customer or financial perspectives, a need that the BSC was able to satisfy. After a late start, the new “indicators’ industry” boomed in the end of the 20th century (Klazinga, et al., 2001) and the adoption of tools like the BSC and the Strategy Map grew constantly over the last decade (Zelman, et al., 2003; Chan, 2009), providing managers with a comprehensive and balanced yet minimized amount of information that combines strategies and policies (Asbroek, et al., 2004). Nowadays, scorecards are used by an extensive list of organizations, including hospitals, hospital systems, psychiatric centres and national Healthcare organizations (Zelman, et al., 2003; Kunz & Schaaf, 2011), and it is believed to be especially appropriate for organizations inserted in turbulent industries such as Healthcare (Senyigit, 2009).

The forms in which the BSC appears in the Healthcare sector are more diverse than in others fields (Gurd & Gao, 2007), maybe due to its particularities, like lack of competition and social character (Grigoroudis, et al., 2012), which make it impossible to analyze the sector according to the competitive market theory (Abreu, et al., 2005). Especially in the public and community institutions, economic margins are extremely narrow (Urrutia & Eriksen, 2005) and consumers (patients) do not pay for the services they receive like in normal market standards (Lapsley, 1994). With the recent advances of the BSC in the Healthcare sector, becoming a strategic management system rather than a simple measurement system (Chan, 2009) and the pressure

on Healthcare organizations to apply effective management tools (Grigoroudis, et al., 2012), the implementation of these models represents an important step towards maturity, aiming at efficiency and modern forms of organization (Rabbani, et al., 2010).

Early adopters of the BSC used to focus more on the quality of processes and financial performance, tending to ignore the cause and effect relationships and not connecting the tool to the organizations' strategy, which means that they were actually not able to explore the true value of the BSC as a tool to contribute to strategic management (Chan, 2009). Aidemark (2001) highlights the fact that cause and effect relations are not so obvious in the Healthcare sector, since there is not a direct link between customers and finance. Therefore, the Strategy Map is an auxiliary tool that can help Healthcare organizations to better understand which are the critical drivers to pursuit service, clinical and management excellence while satisfying all stakeholders involved (Chan, 2009).

The World Health Organization (WHO) defines performance in Healthcare systems in terms of three objectives: health improvement, responsiveness to expectations and fairness in financial contributions (Klazinga, et al., 2001). According to Klazinga, et al. (2001), there should be established a closer link between the resource allocation in Healthcare and the needs of local communities. Abreu, et al. (2005) state that an increase in corporate social responsibility lead to improvements of efficiency and effectiveness of health systems, protecting people from health threats, reducing the incidence of major diseases, and finally generating a healthier way of life. As usual in service entities, human resources are fundamental to define, select and manage the critical success factors and KPIs of Healthcare organizations (Urrutia & Eriksen, 2005). The information obtained through an indicator should be used to monitor and evaluate options in the decision-making process, which seems to be quite obvious but not always done (Klazinga, et al., 2001).

Healthcare has been facing unique challenges in order to adapt the BSC for its reality since the year of 1994, when the first article with this purpose was published in the management literature, and now these studies are in a growth phase (Gurd & Gao, 2007). The first change relating to the traditional framework and consistent with the theory developed for NPOs is the placement of the mission as a top perspective (Gurd & Gao, 2007), but there is no consensus when it comes to the ideal total number of perspectives or their nature. There is an agreement, however, that there should be a special focus on patient health, on successfully

changing the lives of those who the organizations intend to help (Aidemark, 2001; Zelman, et al., 2003; Gurd & Gao, 2007), since the main objective of every health system is to improve health (Asbroek, et al., 2004). Besides, efforts to obtain successful results in quality, care and cost accounting in the Healthcare sector heavily rely on attitudes and behaviours of doctors, nurses and professionals as a whole, so that a perspective such as “people” or “staff” may be convenient (Gurd & Gao, 2007). Another adapted perspective is “community”, which is explained by the fact that Healthcare organizations have to provide services for their customers (patients), but many times the benefits go to the community as a whole (Zelman, et al., 2003; Gurd & Gao, 2007). While patients’ needs should be the centre of the scorecard for Healthcare in NPOs (Gurd & Gao, 2007), Chan (2009) downgrades the financial perspective and places it as the last one. Funck (2007) claims that an exclusive focus on budget may generate dissatisfaction among hospital employees. Additionally to the perspectives discussed so far, Urrutia and Eriksen (2005) believe that hospitals should consider an “environment” perspective, which would provide social-demographic information about patient behaviour patterns. They argue that it is impossible to understand what is going on in an organization without considering the situation of the environment in which it is inserted.

When designing a BSC in this context, some additional considerations are also important. Healthcare institutions are considered professional organizations, which are defined by the fact that professionals are capable of performing complex activities independently and of basing their decisions on their experience and expertise. Professionals tend to demand freedom, self-control, and avoid formal administrative control (Funck, 2007). This kind of behaviour must be considered during the BSC design, and Najmi, et al. (2012) suggest that an organizational behaviour consultant may be helpful to understand the behavioural and cultural consequences of the implementation of this tool. Healthcare professionals are also better informed than patients, opposing to the “customer knows best” rule (Aidemark, 2001). This fact implies that the design of the scorecard should be bottom-up, since the operations are too complex and professionals are the only ones who have the knowledge to set suitable measures and targets (Funck, 2007).

Many empirical studies have been made both in health systems (Netherlands (Asbroek, et al., 2004), New Zealand (Gauld, et al., 2011), Ontario (Chan, 2009)) and in Healthcare institutions, but just a few compared results obtained in more than one organization. In one of these

studies, Gurd and Gao (2007) analyzed 22 case studies performed in diverse countries (USA, UK, Sweden, Australia, New Zealand, Canada, and Taiwan) and with different institutions (all of them from the Healthcare sector). In their research, they found out that the BSCs implemented by these organizations had between three and eight perspectives, 91% had an “internal business processes” (or similar) perspective, 86% presented a “financial” (or similar) perspective, 77% had a “customer” (or similar) perspective, and only 50% presented a “learning and growth” or “innovation and learning” (or similar) perspective. Besides that, 64% had additional perspectives, like “staff and clinicians”, “patients and community”, “volume and market share growth”, “process improvement”, “process and efficiency”, or “social commitment”. An interesting study by Gauld, et al. (2011) shows the importance of two of the “alternative” dimensions mentioned above. According to their research, the interaction between doctors (“staff and clinicians”) and patients (“patients and community”), with the first explaining to the latter about treatment options and procedures, and involving them in the decisions, leads to better results in the quality dimension. Back to Gurd and Gao’s (2007) work, the number of KPIs in the scorecards analyzed ranged from 9 to 44, and there was an alternation of the top perspective.

The implementation of BSCs in hospitals takes in average two years (Greiling, 2010), and attitude among the group of medical professionals tends not to be so positive (Funck, 2007). There are, however, some good results that are worth to be mentioned. When setting targets for the specified measures, a first approach consists of the help of medical professionals, since they are the only ones with technical knowledge to do it properly (Funck, 2007). Another solution is the use of benchmark as a tool to set objectives according to market patterns (Gauld, et al., 2011). Once the targets are set, Chen, et al. (2012) study the use of different techniques to inform employees if these targets are being achieved, so that corrective actions can be taken before the problem increases. They concluded that areas of the hospital in which improvement depends on continuous attention, such as finance and management, can be better controlled and regulated through the use of light signs as warning systems. Tuan (2012) also suggests a link between BSC and the intranet systems of hospitals, so that members are able to access the tool and check their performance at all times. On the other hand, even though Healthcare organizations are implementing BSCs and setting targets to their measures,

the tool is virtually never used as reward systems (Tuan, 2012), which goes along with the previous discussion whether this should be done also in the non-profit sector or not.

Considering the studies and experiences described above, when implementing a BSC in a Healthcare organization, some precautions must be taken. Studies have shown that organizations with high professional orientation have lower compatibility with administrative control systems (Funck, 2007). Aidemark (2001) argues that, traditionally, Healthcare organizations are under clan forms of control, but face a dual status, since they have at the same time self-regulating professionals and salaried employees. On the flipside, the BSC can be quite attractive to these professionals if seen as a tool which decreases the focus on financial measures to accentuate perspectives preferred by medical professionals, such as customer and internal processes. Summarizing, scorecards can be considered effective mechanisms with a more compound picture of Healthcare activities than the traditional financial statements (Aidemark, 2001). Thus, in order to successfully implement this tool, it is important for hospitals to reframe their organizational culture to a more innovative approach, providing leaders with internal and external stimuli to motivate them to change their leadership style (Tuan, 2012). The participation of personnel in the design and review phases of the BSC is vital. Not only should employees understand the selected performance indicators, but they should also internalize and share the vision, working in mixed teams and exercising communication skills (Grigoroudis, et al., 2012).

Other difficulties faced in BSC implementation are obtaining approval to implement it, getting executive time and commitment to develop the project, developing the value proposition from a customer perspective, communicating and applying the scorecard throughout the organization, gathering and processing data, keeping the scorecard simple and using it to enhance the learning process (Greiling, 2010). Zelman, et al. (2003) add the facts that some of the critical success factors are difficult to measure, interpret and compare with other organizations and that Healthcare organizations often present information systems which are badly integrated and poor data warehousing. Finally, it is essential to review both Strategy Maps and BSCs on a regular basis to face with the changes and new challenges of the constantly evolving health system (Chan, 2009).

If BSC's implementation in the Healthcare sector has many particular implications, it also presents a series of advantages to organizations that decide to use this tool. Generally

speaking, the benefits of the BSC in Healthcare organizations are similar to the ones in private business sectors (Grigoroudis, et al., 2012). The study of cause and effect relations forces organizations to define their strategy and identify gaps (Greiling, 2010), highlighting the areas in which specific effort is demanded and the issues that require special attention (Gauld, et al., 2011). This alignment between initiatives and objectives (Chan, 2009) helps to move organizations towards their objectives (Aidemark, 2001). According to Tuan (2012), the implementation of the scorecard in a Vietnamese hospital developed an identity-based trust among its members, because they were able to understand short- and long-term strategies, shaping eventually a market- or patient-oriented culture in the organization. Greiling (2010) suggests that the tool is able to increase performance in competitive market positions, lead to better financial results and increase customer satisfaction, while Funck (2007) stresses the better communication between operative and administration departments and between administration and politicians, particularly when discussing performance and distribution of resources. Other authors mention improvements in recruitment and retention rates, reduction of costs, better clinical outcomes, increase in staff and patient satisfaction and consequent exploration of word-of-mouth (Chan, 2009; Rabbani, et al., 2010; Tuan, 2012). Grigoroudis, et al. (2012) add that the results obtained by measures help organizations to design a proper action plan for the next periods, and Senyigit (2009) concludes that the BSC is able to “renew the pride” of internal stakeholders for what they do.

2.3.6. Key Performance Indicators in the Healthcare sector

A few works concerning the implementation of the BSC in the Healthcare sector have been published and, as this number grows, the variety of KPIs created and selected increases. The 1992 definition of indicator by the Joint Commission on Accreditation of Healthcare Organizations states that a KPI is “a measurement tool used to monitor and evaluate the quality of important governance, management, clinical and support functions” (Klazinga, et al., 2001). According to Klazinga, et al. (2001, p. 434), “indicators should be considered as an integral part of a policy or management cycle and the ultimate cause of all Healthcare services should be the health of the community”. Thus, the set of indicators in the BSC must be selected with the assistance of the community. In the same way, Tuan (2012) suggests that former patients’ recommendations should be taken into account when choosing the list of KPIs.

The literature on indicators is quite extensive and its discussion is out of the scope of this work. Rather than a theoretical analysis, the following table (Table 1) presents a selection of some of the indicators used by organizations of the Healthcare sector studied by empirical literature. The selection was based on the relevance of the indicators to the present work. As mentioned before, when applied to the non-profit or Healthcare sectors, the BSC may present different perspectives comparing to the original model. This table, however, classified the indicators in the four traditional perspectives in order to facilitate the comprehension and to better organize the findings. It is worth mentioning that some indicators could be placed in more than one perspective. In these cases, they were classified according to the original literature from where they were taken.

| Perspective | Indicator | Source |
|--------------------------------|--|-----------------------------|
| Financial | Amount of funds raised | (Gurd & Gao, 2007) |
| | Cost per case | (Gurd & Gao, 2007) |
| | Change in cost per stay | (Chen, et al., 2006) |
| | Operating expenses to operating revenues ratio | (Grigoroudis, et al., 2012) |
| | Length of stay | (Rabbani, et al., 2010) |
| Customer | Patient satisfaction index | (Grigoroudis, et al., 2012) |
| | Number of patient complaints | (Grigoroudis, et al., 2012) |
| | Growth of ambulatory consultations | (Urrutia & Eriksen, 2005) |
| | Outpatient waiting time | (Chen, et al., 2006) |
| | Discharge timeliness | (Gurd & Gao, 2007) |
| Internal Processes | Serious incidents | (Gurd & Gao, 2007) |
| | Employee turnover rate | (Gurd & Gao, 2007) |
| | Employee satisfaction index | (Grigoroudis, et al., 2012) |
| | Employee absenteeism index | (Grigoroudis, et al., 2012) |
| | Outpatients per year per doctor | (Chen, et al., 2006) |
| Innovation and Learning | Training time | (Gurd & Gao, 2007) |
| | Continuing education credits | (Gurd & Gao, 2007) |
| | Publications | (Gurd & Gao, 2007) |
| | New protocols and procedures | (Urrutia & Eriksen, 2005) |
| | Budget percentage invested in new technologies | (Grigoroudis, et al., 2012) |

Table 1 - List of indicators frequently used by organizations in the Healthcare sector

3. Methodology

The aim of this chapter is to present in details the framework and methodology adopted to develop this work, describing each of the steps performed and explaining how the choice for a determined approach was made. In order to facilitate the comprehension of the method, the chapter will present the research phases in chronological sequence, describing the actions taken in each step and explaining the rationale behind them.

The main target of this work is to design a PMS for a non-profit Healthcare institution, applying a well-known framework (the BSC) with some adaptations for this context. In order to achieve this goal, I used Action Research (AR) as research methodology, which is characterized by the cooperation among researchers and an organization that requires some kind of change. The final objective of this methodology is to both solve practical problematic situations and contribute to Science through the discussion and sharing of final results (Agostino & Arnaboldi, 2012).

This work has been developed in four main steps, starting from the collection of information about the case and the actors involved. The second step consisted of a first round of research, in which the interviewees were asked to discuss the mission, vision and core values of the organization, as well as the challenges faced and the contributions of the ambulatory in order to achieve the organizational objectives. The first questionnaire ended asking interviewees to design a Cognitive Map connecting the factors that help or disturb the organization to achieve its mission. The answers collected in the first research were then analyzed, summarized and interpreted, generating a first version of the Strategy Map designed for the ambulatory.

The third step of this work consisted of a second round of research, in which the Strategy Map was presented to the ambulatory collaborators and they were asked to comment this first version, suggesting possible improvements. After that, they were also invited to contribute with ideas of indicators that could be used to measure and monitor the critical success factors identified. Once again, the answers collected were analyzed, summarized and interpreted, and a first version of the Balanced Scorecard was designed.

The fourth step of the work started with a research in the ambulatory database to fill the proposed BSC with previous years' numbers, when available. Once the BSC was ready, a third

round of research was carried out, aiming at validating the BSC designed for the ambulatory and assessing whether collaborators were in favour of linking remuneration to performance, a controversial topic discussed by the literature. After that, the answers were analyzed and a fourth and last questionnaire was prepared in order to clarify some of the indicators which were still under discussion. Once an agreement about the set of indicators for the BSC was reached, some final considerations were made and the tool was ready to be implemented.

It is worth to notice that while these steps were being conducted, I had a series of on-line talks with the ambulatory Medical Coordinator in order to discuss results, solve problems, improve both the Strategy Map and the BSC models and clarify the BSC designing and implementation process.

Figure 12 presents a flowchart for the research methodology:

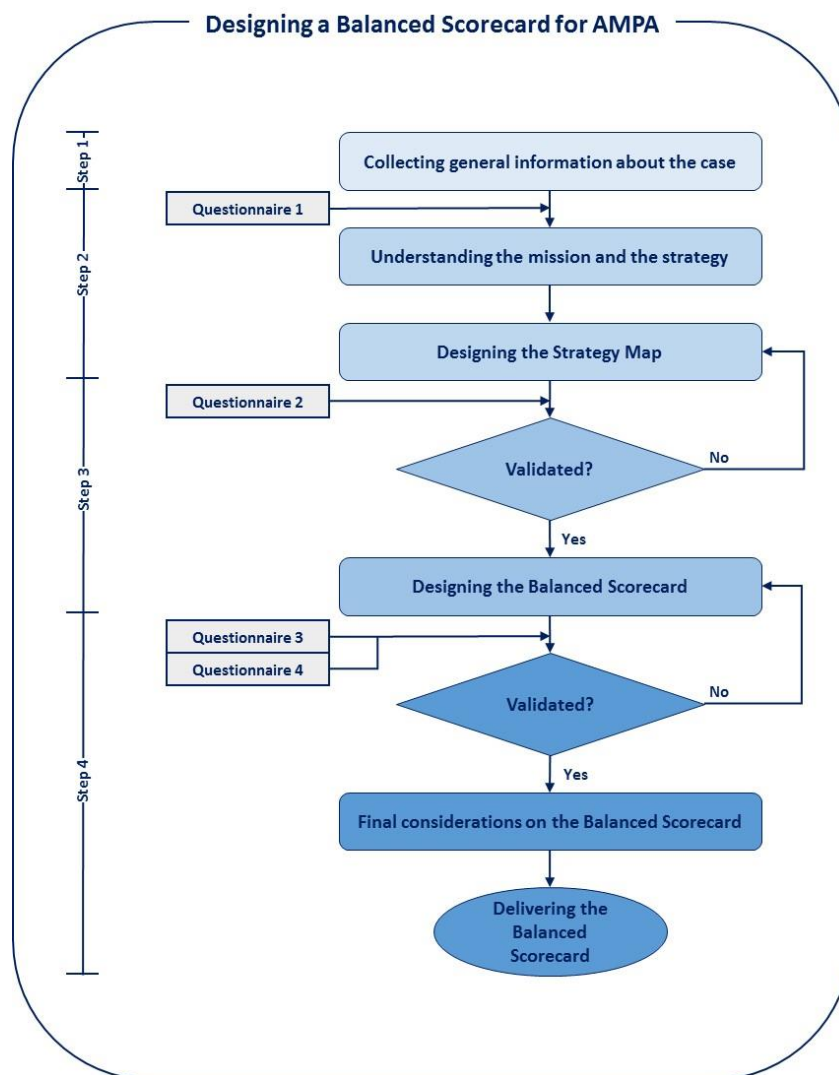


Figure 12 - Flowchart of the research methodology

In the following sections, the research steps are described in more details.

3.1. General information about the case

Before starting any project, it is vital to understand the actors involved and the environment in which they are interacting. The first step of this work aimed at gathering information about the studied organization, the role which the ambulatory plays inside it and the context in which they are inserted. To do so, the organization's website¹ was deeply explored, providing a wide range of information, from the stated mission, vision, and core values, to its business units and the relation among them. The website also provided general numbers about the organization, which gave useful insights to clearly visualize the picture of the research object.

Focusing more specifically on the unit of study of this work, further research was made to gather information about the ambulatory. To perform these activities, I had a series of on-line talks with the ambulatory Medical Coordinator, which also provided me with material from the organization's intranet. This step was important to clarify the business processes inside the ambulatory and to collect precise numbers, related to both patients and collaborators.

Next, research was made to better understand the context in which the ambulatory actuates. General information was collected to describe the community of Paraisópolis, in which the ambulatory is located and where its patients come from.

Once the actors and environment were clearly defined, the following stages could be performed and the Strategy Map and the BSC started to be developed with the collaboration of the ambulatory employees.

3.2. Designing the Strategy Map

The next step after understanding which were the actors involved and in which environment they were interacting was the design of a Strategy Map for the ambulatory. During this stage, the ambulatory collaborators were asked to answer a questionnaire (Questionnaire 1) with the following objectives:

- Identifying the collaborators' awareness about the organizational mission, vision, and core values;

¹ SBIBAE website: www.einstein.br

- Understanding which are the main competences of the ambulatory, how it helps the whole organization to achieve its mission, and which are the most significant challenges faced to achieve this goal;
- Designing a Cognitive Map, highlighting which are the factors that contribute for the ambulatory to help the organization to achieve its mission.

The questionnaire in Portuguese was specifically designed for the purpose of this work. Printed copies were distributed to 20 collaborators with different roles within the ambulatory. The group of respondents was carefully selected by me and the ambulatory Medical Coordinator, and consisted of Physicians, Nurses, Pharmacists, Social Workers and Community Action Agents, among others. The idea behind it was to consider as many perspectives as possible, in order not to miss important insights, which can be particularly important to a specific group. The participants had one week to answer the questionnaires, which were then collected, scanned and sent to me via e-mail to be further analyzed.

A complete version of the questionnaire in English can be found in the Appendix 1, and the questions are discussed below:

- Questions 1 and 2 try to identify the participant, its role within the ambulatory and for how many years it has been working for the organization. The objective of these questions is to have a clear picture of the profile of the participant and to relativize its answers according to the perspective from which it observes the organization;
- Question 3 tries to identify the alignment between the organization and its collaborators. The objective is to assess whether employees are aware of the organizational stated mission, vision, and core values;
- Questions 4, 5, 6 and 7 try to make the participant reflect about the role the ambulatory has inside the organization, how it helps on the achievement of the mission, how it could improve, which are the main competences it provides the organization with, and which are the most significant challenges faced when operating these tasks. More than the direct answers, these questions try to generate a reflection about the role of the ambulatory on the organization's overall mission and to prepare the participant for the eighth and last question;

- Question 8 somehow summarizes the questionnaire. After a brief explanation about the definition of Cognitive Maps and a simple example, participants were asked to design their own Cognitive Map for the ambulatory, highlighting the factors which were, in their opinion, directly responsible for the achievement of the stated mission.

After the first round of research, all the answers were collected, organized, analyzed and interpreted, generating a set of factors considered by the collaborators as important for the achievement of the organizational mission. These factors were then organized and with the assistance of the Medical Coordinator of the ambulatory a first version of the Strategy Map was designed.

3.3. Validating the Strategy Map and designing the Balanced Scorecard

Once the first version of the Strategy Map was released, it was time to validate it and start searching for the right set of indicators to measure the selected critical success factors. The third step of this work started with the design of a new questionnaire (Questionnaire 2) to be addressed to the ambulatory collaborators aiming at:

- Possible improvements for the proposed Strategy Map;
- Collecting indicators for the BSC.

The questionnaire in Portuguese was specifically designed for the purpose of this work. Ten participants were selected by me according to the quality of their answers in Questionnaire 1, trying to keep a balance among the different roles within the ambulatory. The questionnaire was prepared in an electronic version, participants had one week to answer them digitally and return them to me via e-mail. The answers were then organized in a table to be further analyzed.

A complete version of the questionnaire in English can be found in the Appendix 2, and the questions are discussed below:

- Question 1 tries to validate the proposed Strategy Map. Alternatively, participants were asked to make comments on how to improve the model to better suit it to the ambulatory reality;
- After a brief explanation on what are indicators, question 2 asks participants to suggest two indicators for each factor present in the proposed Strategy Map.

The second round of research generated a long list of indicators, which were classified according to the frequency in which they were mentioned, their pertinence and relevance. The suggestions of improvement for the Strategy Map were discussed with the Medical Coordinator and some of them were applied. The list of indicators was then reviewed and a careful selection was performed with the Medical Coordinator, identifying one or two indicators for each critical success factor. These indicators were organized and this step was finished with the elaboration of the first version of the BSC.

3.4. Validating the Balanced Scorecard

The last step of this work started with a data collection to fill the proposed model for the BSC with information about the two previous years, when available. This process took approximately two weeks and involved a variety of actors from the ambulatory, coordinated by the Analyst of Managerial Information 1, to obtain the necessary data. Once the data was gathered, it was inserted to the BSC. One more questionnaire (Questionnaire 3) was designed and applied with the following objectives:

- Improving the proposed version of the BSC;
- Assessing whether collaborators were in favour of linking reward systems to performance.

The questionnaire in Portuguese was specifically designed for the purpose of this work. Six participants were selected by me and the Medical Coordinator according to their proximity to the managerial level, representing the actual final users of the tool. The questionnaire was prepared in an electronic version, participants had one week to answer them digitally and return them to me via e-mail. The answers were then organized in a table to be further analyzed.

A complete version of the questionnaire in English can be found in the Appendix 3, and the questions are discussed below:

- Questions 1, 2 and 3 try to validate the proposed BSC, asking whether participants were feeling in control of the organization considering the available data. Alternatively, they were invited to improve the model including missing indicators or identifying irrelevant information;

- Question 4 addresses a controversial topic according to the literature, and asks participants whether they are in favour of linking remuneration to performance through the achievement of the targets in the BSC.

The third round of research resulted in a few suggestions of improvements for the proposed model, which were discussed one by one with the Medical Coordinator to define whether they should be or not included in the final version of the BSC. Some of these questions, however, could not be answered and needed further discussion among the ambulatory collaborators, so that we decided to make a fourth and last round of research consisting of one more questionnaire specifically addressed to Physicians.

Questionnaire 4 was then designed with the following objectives:

- Identifying which is the best way, according to collaborators, to evaluate employees' competences and updating;
- Defining which should be the three pathologies to be monitored by the indicator "average number of consultations per pathology".

The questionnaire in Portuguese was specifically designed for the purpose of this work. Six Physicians, plus the Medical Coordinator and the Analyst of Managerial Information 1, were invited to answer the questionnaire, since they were considered more appropriate to deal with the topic. The questionnaire was prepared in an electronic version, participants had three days to answer them digitally and return them to me via e-mail. The answers were then organized in a table and classified according to a matrix to be further analyzed.

A complete version of the questionnaire in English can be found in the Appendix 4, and the questions are discussed below:

- Question 1 addresses the issue of measuring collaborators' technical competences and updating, which was considered as a controversial topic since the methods currently used were subjective. This question asked collaborators for suggestions on how to improve the method;
- Question 2 presents a list of the most frequent chronic diseases in the ambulatory, and asks participants to rank the three diseases which they believe that should be monitored by the BSC considering some important factors, such as frequency and participation of the medical team in the treatment.

Answers for question 1 were discussed with the Medical Coordinator, while answers for question 2 were organized in a matrix, in which different scores were attributed to the listed diseases according to their rank in each of the answers. The three diseases with the highest scores were then identified and selected to be part of the BSC.

Once this stage was finished, some final considerations were made about the implementation of the BSC and the work was finished.

4. Empirical case

The objective of this chapter is to describe in details the whole empirical case which lead to the construction of the BSC for the ambulatory. It starts with a description of the main organization (SBIBAE) and its divisions, then focusing specifically on the ambulatory (AMPA) and the neighbourhood in which it is located (Paraisópolis). Next, it explains step by step the whole procedure of data collection, the results obtained, how they were treated and how they were used as input for the following steps, in a continuous process that eventually generated the final product of this work.

4.1. General information about the case

4.1.1. Sociedade Beneficente Israelita Brasileira Albert Einstein

The “Sociedade Beneficente Israelita Brasileira Albert Einstein” (SBIBAE²), directly translated as “Israelite-Brazilian Beneficent Society Albert Einstein” is a Non-Profit Brazilian Organization founded in the city of São Paulo in 1955, fruit of the commitment of the Jewish community to the general population in offering high quality medicine practices. Among its many different fields of actuation, the most important and well known is the “Hospital Israelita Albert Einstein” (HIAE), directly translated as “Israelite Hospital Albert Einstein”, considered the most modern private hospital in Latin America and the first health institution outside the USA to be certified by the Joint Commission International³ (JCI), in 1999.

SBIBAE’s stated mission is (translated by the author):

“To offer excellence in quality in the fields of health, knowledge generation and social responsibility, as a way to point out the contribution of the Jewish community to the Brazilian society.”

In order to fulfil this mission, SBIBAE’s stated vision is (translated by the author):

“To be innovative and to have a leadership position in medical and hospital care, being a reference in the knowledge management and recognized for the commitment to social responsibility.”

Finally, the stated core values of SBIBAE are (translated by the author):

² SBIBAE website: www.einstein.br

³ The Joint Commission International is an institution which works with Healthcare organizations, governments and international advocates to promote rigorous standards of care and provide solutions for achieving peak performance through accreditation, education and advisory services. (Adapted from Joint Commission International website, www.jointcommissioninternational.org/About-JCI)

“Mitzvá, Refuá, Chinuch and Tzedaká, that is, Good Deeds, Health, Education and Social Justice. These were the Jewish precepts that motivated doctors from the Jewish community to found SBIBAE more than 50 years ago. Added to the organizational values (Honesty, Truth, Integrity, Diligence, Competence and Justice) they guide the activities and staff of the institution.”

According to the data published in their website, in December 2012, the whole institution has 9.550 employees, 40% of which have a college degree. 69% of the employees are women, which occupy 59% of leadership positions. The average age of employees is 34 years old, and the average time in the organization is 5 years. The number of registered doctors is approximately 6.000.

The institution is divided in four business units, which are briefly described below:

- **Hospital Israelita Albert Einstein (HIAE):** as mentioned before, the “Israelite Hospital Albert Einstein” occupies a vanguard position among hospital institutions in Latin America, having been certified by the JCI for three times in a row, aside from being certified by ISO in a variety of areas. Considered one of the best hospitals in the country and in the continent, it has become a reference in prevention, diagnosis and treatment of diseases in the fields of Cardiology, Oncology, Orthopaedics, Neurology, Transplants and Surgery.
- **Instituto Israelita de Ensino e Pesquisa Albert Einstein (IIEPAE):** with the mission of “being reference in research, generation and diffusion of knowledge in the field of health to benefit the society”, the “Israelite Institute of Education and Research Albert Einstein” was founded in 1998 after the merger of the College of Nursing Albert Einstein, the Technical School and the Laboratory of Research and Development of HIAE. It currently hosts units dedicated to experimental, clinical and pre-clinical research, and an educational centre, which performs teaching activities, trainings in Healthcare area and scientific diffusion within SBIBAE. It also provides researchers with an integrated library system, a centre of realistic simulation and a centre of information and communication.
- **Medicina Diagnóstica Albert Einstein (MDAE):** the “Diagnostic Medicine Albert Einstein” is a unit dedicated to the execution of medical exams counting on the experience of HIAE professionals and using last generation equipment. Through the advanced units, MDAE decentralizes the medical services, achieving more distant

areas and reaching a wider variety of customers, providing diagnostic services and non-hospital assistance.

- **Instituto Israelita de Responsabilidade Social Albert Einstein (IIRSAE):** based on the Jewish concept of Tzedaká (“Social Justice”), the “Israelite Institute of Social Responsibility Albert Einstein” is essential for SBIBAE to achieve its mission, and special attention has been paid to this unit from the very first years of the organization. It currently operates in four different fronts:
 - **Governmental programs:** partnerships between SBIBAE and the Ministry of Health and between SBIBAE and the Municipal Secretary of Health of the city of São Paulo in order to develop projects aiming at improving the “Sistema Único de Saúde” (SUS), Brazilian National Health System, and strengthening the Healthcare system in the south region of São Paulo through family health programs and ambulatory medical assistance, applying SBIBAE’s expertise to improve the management of basic health units.
 - **Transplants:** using its expertise in the field, SBIBAE aids the National Health System performing organs transplants to patients of SUS since 2002, having surpassed 2.000 cases in the year of 2011.
 - **Municipal Hospital Dr Moysés Deutsch:** operating since 2008, this unit is located 30 kilometres far from the city centre and is the only hospital in a radius of 7 kilometres, providing services to an underprivileged population of around 600.000 people.
 - **Community programs:** initiatives developed within the Jewish community, the poor community of Paraisópolis and the general population in order to increase the care assistance in the city. They include a health program for the Jewish needy community, a Healthcare rest home for the elderly, educational actions to teach and train health professionals of the public sector and philanthropic entities, donation of equipment, medicines and general hospital supplies to other entities and the “Programa Einstein na Comunidade de Paraisópolis” (PECP), directly translated as “Einstein’s Program in Paraisópolis Community”. PECP is a program initially created with the objective of assisting the poor community of Paraisópolis. It actuates in two different branches, the first being

responsible for social and educational activities for more than 6.000 community members with no age restriction, and the second, the object of study of this work, a paediatric ambulatory which assists around 12.000 children from 0 to 14 years old, which will be further described in the next section.

Figure 13 shows a simplified version of SBIBAE’s organogram, focusing specifically on its social responsibility branch and Paraisópolis Ambulatory, which is the theme of this work.

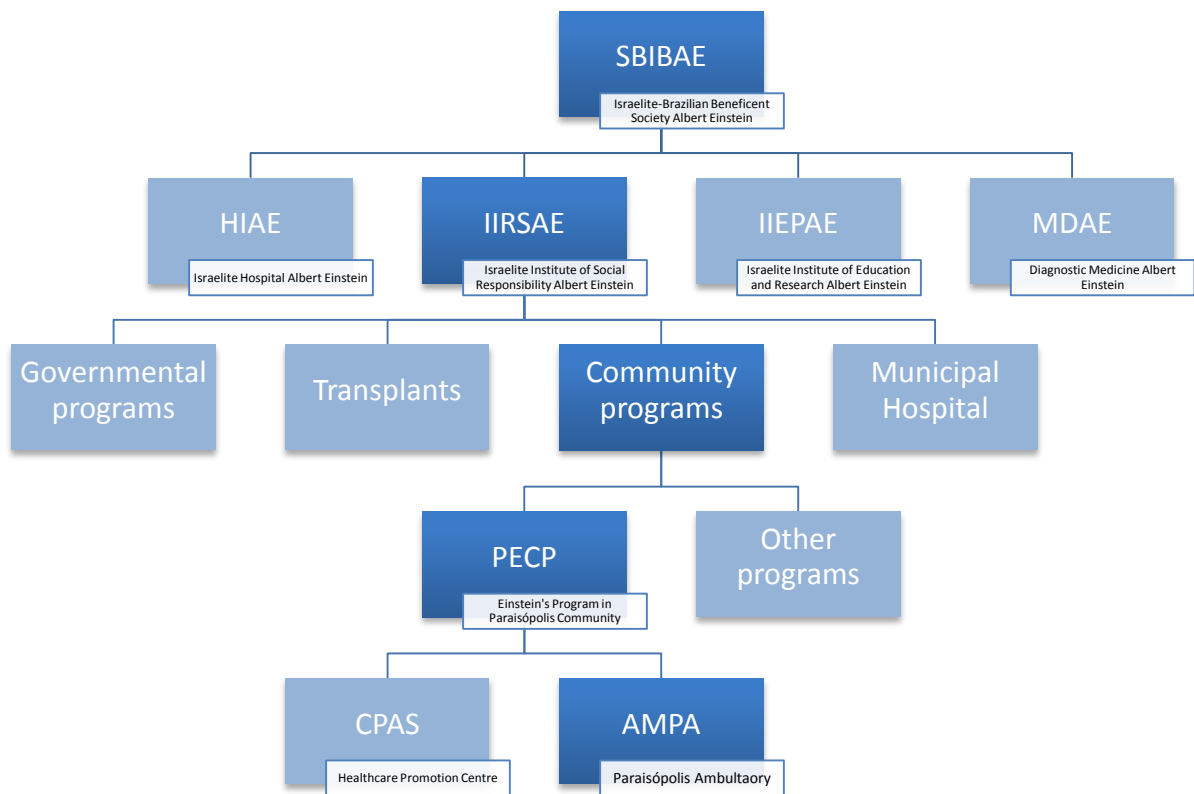


Figure 13 - SBIBAE simplified organogram

4.1.2. Ambulatório de Paraisópolis

The “Ambulatório de Paraisópolis” (AMPA), directly translated as “Paraisópolis Ambulatory” is a community Healthcare centre located in the poor community of Paraisópolis, in the south region of the city of São Paulo. Its objective is (translated by the author):

“To provide specialized outpatient medical assistance of excellence to children and teenagers from 0 to 14 years old, based on recent clinical findings and aided by the modern diagnostic support and complete treatments, assuring quick and effective intervention articulated to the basic needs of the Healthcare network.”

Besides, the program aims at being part of the educational process of resident students and at generating knowledge through clinical research.

The project, which started in 1998 serving approximately 500 patients of Paraisópolis neighbourhood, has currently around 12.000 registered patients, having expanded to Campo Limpo neighbourhood and with an expansion plan for the neighbourhood of Capão Redondo, all of which are part of an underprivileged region of São Paulo.

In order to perform its activities, AMPA currently counts on 64 employees, 18 of which are Physicians compounding the clinical staff. Besides, the ambulatory counts on 23 specialists hired as legal entities, 29 residents coursing their first or second year of post-graduation and 18 volunteer collaborators. Table 2 presents a list of the collaborators currently working for AMPA:

| Role | Number |
|---|---------------|
| Administrative Manager | 1 |
| Administrative Technicians | 10 |
| Analysts of Managerial Information | 3 |
| Community Action Agents | 4 |
| Kitchen-Maid | 1 |
| Medical Coordinator | 1 |
| Nurses | 4 |
| Nutritionists | 4 |
| Occupational Therapists | 2 |
| Pharmacists | 2 |
| Pharmacy Assistant | 1 |
| Physicians | 18 |
| Social Workers | 6 |
| Technical Nurses | 7 |
| TOTAL NUMBER OF HIRED EMPLOYEES | 64 |
| Specialists (legal entities) | 23 |
| Residents (post-graduation students) | 29 |
| Volunteers | 18 |

Table 2 - List of AMPA's collaborators

AMPA is about to be the first ambulatory in Latin America to receive the JCI certificate for clinical actuation. The program, which started with a preventive focus and now operates also therapeutically, provides the poor population of the region with totally free services in all

paediatric areas, except for Gynaecology, Obstetrics, Oncology, Psychiatry and Neurosurgery, cases in which the ambulatory redirects the patients to the public Healthcare system. The philanthropic actuation also includes supporting professionals, like Phonoaudiologists, Physiotherapists, Psychologists, Psychopedagogists, Occupational Therapists and Nutritionists.

Apart from the fulfilment of its mission to contribute to society and to be socially responsible, the program improves the image of SBIBAE and decreases taxes paid by the organization, which are redirected to IIRSAE's initiatives.

4.1.3. The use of Performance Measurement Systems in SBIBAE and AMPA

As most of the big organizations, SBIBAE gives great importance to performance measurement activities, and has been using a BSC to control its results along the last years. The tool, however, was not disclosed and no further information was provided about it.

AMPA, in turn, does not have any formal PMS, but is managed according to a set of indicators connected to SBIBAE's BSC, and has annual targets to reach. These indicators and the targets set are presented in Table 3, divided according to the perspective in which they are included in SBIBAE's BSC:

| Perspective | Indicator | Target |
|---------------------|--|---|
| Internal processes | PECP accreditation by the JCI | PECP accreditation by the JCI |
| | Number of works subscribed for the “Exhibition of Quality and Patient Security” | At least four works |
| Learning and growth | Rating for collaborator satisfaction index in the organizational climate survey | More than 75% |
| | Percentage of collaborators participating in institutional or specific trainings | More than 95% |
| | Percentage of general paediatric consultations substituted by specialized consultations | 25.000 consultations and increase the offer |
| | Number of aided basic health units over total number of basic health units under SBIBAE’s management | More than 66% |
| | Patient waiting time for consultation | Less than 45 days |

Table 3 - Set of indicators currently used by AMPA

4.1.4. Paraisópolis neighbourhood

Located in the south region of the city of São Paulo, with an area of almost 800.000 m² and a population of 42.826 people⁴, the neighbourhood of Paraisópolis was originally destined for the construction of high-class residential buildings, but started to be occupied by low-income families during the 1950s. In a couple of decades, the area was already overpopulated and had more than 20.000 inhabitants, many of which were working on the construction of luxury condominiums in rich neighbourhoods close to the region.

The area started to receive public and private investments in the beginning of the 21st century in an urbanization process and through the regularization of the existing buildings, totalling more than R\$ 250 million (approximately € 85 million). Even though it is now officially considered a neighbourhood, only 25% of the residences are provided with sewerage system, half of the streets are not paved and 60% of the population uses illegal ways to obtain electricity. Two of the four public schools in the community are considered the worst in the city.

4.2. Designing the Strategy Map

4.2.1. Questionnaire 1 – Application

After collecting general information about the case, the Strategy Map could start to be designed in a long and iterative process that involved many actors and BPM theory. As said in the methodology chapter, the first questionnaire (Appendix 1) was applied to a group of 20 collaborators selected by the Medical Coordinator and me, in order to guarantee that all the different areas were covered in the research, making sure that the data collected represented the widest possible variety of perspectives.

Among all the participants, special attention was given to the Community Action Agents, which are members of Paraisópolis community hired by AMPA to facilitate the communication between the ambulatory and its patients. In this way, the Community Action Agents were considered somehow representatives of the community, and thus the customers.

The answered questionnaires were collected, scanned and sent to me via e-mail. One by one they were read and the answers were organized in a spreadsheet, in order to be more easily

⁴ According to Instituto Brasileiro de Geografia e Estatística (IBGE) Census of 2010.

compared in a visual way. The different answers were summarized and the conclusions were reached over the most common opinions, as well as the outliers which were considered pertinent.

The list of participants of Questionnaire 1 is presented in Table 4:

| List of participants | Time in institution (years) |
|-------------------------------------|-----------------------------|
| Administrative Manager | 15 |
| Administrative Technician | 5 |
| Analyst of Managerial Information 1 | 2 |
| Analyst of Managerial Information 2 | 1 |
| Community Action Agent 1 | 2 |
| Community Action Agent 2 | 3 |
| Medical Coordinator | 12 |
| Nurse 1 | 2 |
| Nurse 2 | 8 |
| Nutritionist | 1 |
| Occupational Therapist | 4 |
| Pharmacist | 7 |
| Physician 1 | 13 |
| Physician 2 | 11 |
| Physician 3 | 8 |
| Physician 4 | 9 |
| Social Worker 1 | 2 |
| Social Worker 2 | 4 |
| Technical Nurse 1 | 1 |
| Technical Nurse 2 | 16 |

Table 4 - List of participants of Questionnaire 1

4.2.2. Questionnaire 1 – Results

The results of the first questionnaire are presented in the following:

- **Time in institution:** As it can be observed in Table 4, there is a large variability in terms of time in institution, ranging from 1 year up to 16 years (since the inauguration of the program). The average time in institution is around 6 years.
- **Mission and vision:** All the 20 interviewees were aware of the mission and vision of the organization, a number that must be relativized for two reasons:
 - When answering the questionnaire, the participants had total freedom to use any kind of source they wanted to, in particular the organization's website, where they could easily find the stated mission and vision.
 - Since the ambulatory is currently under the accreditation process of the JCI, all the collaborators were trained in order to be aware of this information.

Even though this result has no statistical value, it shows that for some reason all employees are aware of the mission and vision, or at least they know how to have access to them.

- **Core values:** Among the 20 interviewees, 16 were aware of the core values, while 4 were unaware or just partially aware. This number can be considered quite good and once again it shows an alignment between organization and collaborators. The same remarks in the mission and vision item must be applied here.
- **AMPA's contribution to fulfil the mission:** Among the 20 participants, 14 mentioned "social responsibility" as one of the main contributions of AMPA to fulfil the mission, same number of participants that answered "quality of care" or similar. These are two of the three objectives stated in SBIBAE's mission. The third main objective, "knowledge management", was mentioned by five participants, mainly referring to the knowledge shared with resident students.
- **Areas for improvement:** A large variety of answers came out from question 5, which asked in which other ways the ambulatory could help SBIBAE to achieve its mission. Some of the most frequent answers are listed here: better designed processes, reduction of patient's waiting time, increasing the supply of services (the demand for their services is too high), increasing the variety of specialties, investment on

knowledge generation, higher disclosure of AMPA's activities to SBIBAE and the society in general (in a way to promote their service), valorisation and growth opportunities for employees.

- **Core competences:** When asked about the core competences inside the ambulatory, the most common answers were related to their collaborators, mentioning in particular their skills, academic background, commitment and respect. Other common answers cited creativity, ability to work in teams and updating as core competences. Finally, some of the participants identified their variety of services provided, infrastructure, technology, materials and availability of medicines as the main values delivered to customers.
- **Challenges:** The answers concerning the main difficulties and challenges faced by AMPA were often similar, which shows some agreement among collaborators when it comes to this topic. The most common answers were: the cultural barrier between professionals and the community of Paraisópolis, fighting the absenteeism from patients, how to increase the supply without losing in terms of quality, improving the infrastructure with a limited amount of resources, depending on governmental partners with lower performance, and keeping employees motivated.
- **Cognitive Maps:** The Cognitive Maps drawn by collaborators were somehow a way to synthesize all the answers in the questionnaire. At this moment, participants had the opportunity to reflect and draw in a blank paper their ideas of factors that, when correctly connected, could lead AMPA to fulfil its mission and consequently help SBIBAE to fulfil its own. Appendix 5 presents five original examples of Cognitive Maps drawn by collaborators (Medical Coordinator, Nurses 1 and 2, Physician 1, and Technical Nurse 1).

4.2.3. Questionnaire 1 – Discussion

The answers of Questionnaire 1 brought some thoughtful insights, which provided the basis for designing the first version of AMPA's Strategy Map. This process started with the definition of a mission for the ambulatory, since it does not have it formally stated. To do so, I had an informal talk with the Medical Coordinator, in which we discussed SBIBAE's mission and, aided by the questionnaires' answers, defined how the ambulatory helps the main organization to achieve it.

As mentioned before, SBIBAE's stated mission is:

"To offer excellence in quality in the fields of health, knowledge generation and social responsibility, as a way to point out the contribution of the Jewish community to the Brazilian society."

Reading and interpreting this statement, it is possible to identify three main components, namely "health", "knowledge management", and "social responsibility". Thus, we may assume that in order to fulfil its mission, the organization has to work in these three different fronts. However, SBIBAE is divided in a variety of business units, each of which with its specific focus and objectives. Therefore, it is possible to affirm that SBIBAE can fulfil its mission if its business units are able to achieve their individual objectives. In this case, AMPA has to perform its tasks focusing on its own part of mission, which was defined with the help of answers to question 4.

Although five participants mentioned "knowledge management" in their answers, it is easy to see that this is not the main contribution of the ambulatory, since it currently does not have knowledge generation as a goal and despite sharing knowledge, this is not the main objective either. Therefore, we have "health" and "social responsibility" as two important outcomes of AMPA's work. In my on-line talk with the Medical Coordinator, however, we agreed that even though "health" is important for the ambulatory, "excellence in health" is not a mission for them, since it is not their objective to have the best available Healthcare technology as it is in the main hospital (HIAE). This conclusion goes perfectly along with the Pharmacist statement reproduced below (translated by the author):

"We play an important social role, seeking safety and quality (...)"

In the same way, Community Action Agent 1 stated that the program provides (translated by the author):

"Quality of health, the right that everyone has to expose their opinions and receive clear information, with no distinction of skin colour, age or sexual orientation."

Our conclusion is that AMPA's mission is related to "social responsibility", and the strategy to achieve it is through the provision of good quality of "health" to a needy community, rather than having "excellence in health" as a mission. Achieving its own particular mission, that is, "social responsibility", AMPA helps SBIBAE to fulfil its formal mission, being "social responsibility" one of its pillars.

Once the mission was identified, questions 5, 6 and 7 raised some of the critical success factors to achieve it. Despite being addressed in different ways, all these questions generated a reflection among the participants on what are the important issues for AMPA to fulfil the mission, either because they see it as currently present (question 6) or because they see it as something to improve (question 5) or overcome (question 7). In this way, the most commonly and/or pertinent answers were gathered in a list of possible critical success factors for AMPA to achieve its mission:

- **Well-designed processes:** This factor was repeatedly mentioned, maybe because the ambulatory is under the accreditation process and employees are constantly listening to these terms. In her answer, Nurse 1 highlighted exactly this topic (translated by the author):

“Investing on processes, in quality, through accreditations.”

Physician 4, which is currently in charge of the issues related to the accreditation process, also mentioned the importance of quality (translated by the author):

“We miss a quality culture in the ambulatory.”

Independently on the reason why they were so frequently mentioned, well-designed processes can certainly improve the quality of service and health provided to the community.

- **Safety:** Also refers to processes. Safety is essential, especially in a Healthcare context, where mistakes can lead to heavy consequences.
- **Decrease waiting time:** Directly linked to customer satisfaction, it was identified as one of the great challenges for AMPA, and was cited, among others, by Community Agent 1 (translated by the author):

“Continuous improvement in working processes, reduction of waiting time and delays, assistance the answers to patients particular needs.”

- **Large supply (number of treatments):** Another important challenge for the ambulatory is increasing the supply keeping the same service quality, as stated by the Analyst of Managerial Information 1 (translated by the author):

“Due to the change in the scope of actuation, the main challenge for AMPA is to keep the good image developed within Paraisópolis community and spread it to the new public, that is, growing without losing.”

- **Large variety of specialties:** Seen as one of the ambulatory’s differentials, the large variety of services provided has to be maintained or even increased in order to always meet the customer needs.
- **Knowledge generation:** Although it is not AMPA’s main objective, it is believed that the ambulatory could generate more knowledge, which is viewed as a challenge.
- **Training collaborators:** This action has multiple consequences, starting from a more qualified team that can provide better services to customers, up to increasing motivation in an individual level. Social Worker 1 was one of the participants that mentioned this issue (translated by the author):

“Promoting actions and trainings to collaborators to stimulate the continuous improvement.”

- **Disclosure of activities within SBIBAE and society to increase awareness and recognition:** this initiative also has a motivational character, since many of the participants mentioned the lack of recognition as a drawback. The Medical Coordinator, for example, highlighted the (translated by the author):

“(…) lack of disclosure about the program to SBIBAE, and the lack of recognition of SBIBAE’s board of Directors towards the activities developed in the ambulatory.”

- **Increase prevention among patients, rather than treatments:** The ambulatory, which once had a preventive approach, nowadays works mostly with outpatients’ treatment. This fact was mentioned by some of the participants, which believe that AMPA should somehow recover its preventive actions, educating the community rather than simply solving its problems.
- **Valorisation and growth opportunities to collaborators:** Similar to some of the factors discussed above, it brings to light strategies to motivate and improve the team.
- **Data tracking:** It is important to have good IT systems to keep track of the information within the ambulatory.
- **Collaborators’ skills and updating:** Cited as one of AMPA’s core values, collaborators must be always updated and have to be carefully selected according to their skills and

backgrounds. The Occupational Therapist was one of the many participants that tackled this issue (translated by the author):

“The main competence of AMPA lies on its extremely capable and qualified team, which allows the organization to fulfil its mission.”

- **Collaborators’ motivation and commitment:** Motivation and commitment are two vital characteristics for a group that wants to keep high productivity levels and customer satisfaction rates. As stated by Physician 3, one of the main qualities of AMPA is the (translated by the author):

“(…) commitment with the service and the identification of collaborators with the social responsibility values of SBIBAE.”

- **Collaborators’ respect towards the community:** In order to break the frequently mentioned cultural barrier between AMPA and the community, being respectful is critical. This factor was mentioned, in particular, by the two Community Action Agents, which is extremely meaningful, since in some level they represent the patients.
- **Collaborators’ sensitivity and creativity:** Two important factors that help organizations to improve processes and satisfy customers.
- **Infrastructure:** Some of the participants mentioned the lack of infrastructure as an important issue, both for collaborators and for patients.
- **Technology, equipment, materials and medicines:** Even though “excellence in health” is not AMPA’s mission, investing in technology, equipment, materials and medicines is essential to provide the community with good care and achieve the “social responsibility” mission.
- **Fighting patients’ absenteeism:** Possibly fruit of the cultural barrier, patients’ absenteeism is still a huge problem for AMPA, which must be overcome in order to effectively perform its strategy, as stated by many participants, including the Medical Coordinator.
- **Improving partners’ performance:** The ambulatory is forced to work with some governmental partners, which are not in their same level and decrease AMPA’s efficiency. In particular, the Medical Coordinator cited the (translated by the author):

“Technical difficulties in the interface between AMPA and the Basic Health Units.”

- **Increasing financial resources:** Budget limitations are a major problem for AMPA, which does not have enough money to invest in all the areas that need to be improved.

After the critical success factors were identified, and with the support of the Cognitive Maps created by the participants in question 8, the collected data could be inserted into the framework to finally design AMPA’s Strategy Map.

4.2.4. Strategy Map – Designing process

The Strategy Map is a well-known framework, but according to Kaplan (2001) it must be adapted when used in a non-profit context, since normally the financial perspective becomes somehow a restriction rather than an objective. Therefore, the Strategy Map assumes a new shape when applied to an NPO, such as the one we are studying. This variation of the Strategy Map framework can be observed in Figure 14, and was the departing point to design the Strategy Map for AMPA.

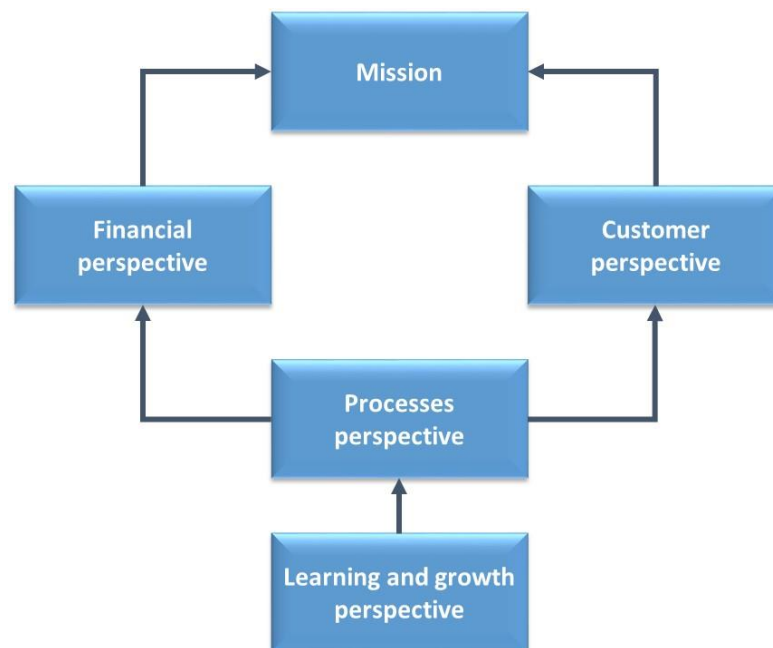


Figure 14 - Strategy Map adapted for Non-Profit Organizations

With this adapted framework in hands, it was necessary to customize it for the ambulatory reality. First of all, a simplified version of SBIBAE’s mission, considering just the three key elements discussed before, was inserted at the top of the Strategy Map, as an overarching mission. Next, the newly defined mission for AMPA was included, right below the overarching

one. The customer perspective was then added below the mission, showing that this perspective is considered the most important one in order to fulfil the mission. The customer perspective was then connected to two other perspectives. One of them, the traditional processes perspective, represents the importance of having good practices in order to satisfy the customers. The other one, collaborators perspective, go along with the studies of Grigoroudis, et al. (2012) and to Greiling (2010), which state that when used in a non-profit context, the Strategy Map does not need to be restricted to the four traditional perspectives, but can consider new ones. In particular, a perspective that is frequently considered is the employees' (Gurd & Gao, 2007), whose lack in the traditional Strategy Map approach is criticized by Neely and Adams (2000). Since the ambulatory is a professional organization, in which the staff is highly important and is directly responsible for the activities performed, we decided to include this perspective in AMPA's Strategy Map. Below these two perspectives, learning and growth perspective shows that in order to have good collaborators and processes it is vital to continuously invest on both. Finally, the fifth and last perspective is the financial perspective, which indicates that it is a constraint rather than an objective for AMPA. The new configuration of AMPA's Strategy Map can be visualized on Figure 15:

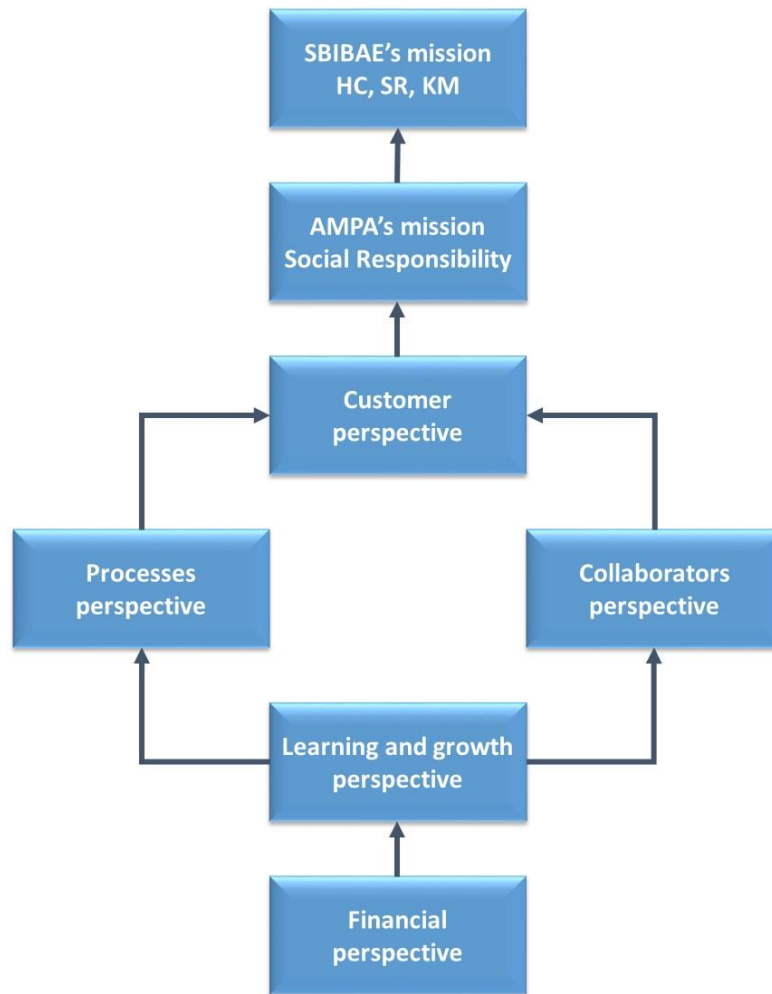


Figure 15 - Strategy Map adapted for AMPA

If read from the bottom to the top, the Strategy Map can be explained as follows: if the finances are well managed, there will be budget to invest on learning and growth. If this investment is correctly allocated to develop and motivate the staff and to create new and improve the existing processes, satisfying customers is a natural consequence. And if the customer is satisfied, the ambulatory is able to achieve its own mission, automatically guaranteeing that one of the three pillars of SBIBAE's mission is fulfilled.

The next step consisted of trying to identify which are the critical success factors for each perspective according to the answers in the questionnaires. To do so, the following questions were discussed:

- **To achieve our mission, how must we look to our customers?**

Customers' expectations were divided in three different fronts. The first one is related to the quality of care received from the ambulatory, which comprises a series of factors, such as

safety, volume (supply), variety of services, low waiting time and, in a wider perspective, the improvement of the public health system as a whole, through knowledge sharing, for example. A second front is related to educating the community, especially in terms of prevention. Although it is also related to health, it was included as a separate factor because it has little to do with technology, materials or medicines, but it is more about collaborators' skills and initiatives to educate people. The third front is not as obvious as the two others, but was included due to the frequency with which it was mentioned in the questionnaires, particularly by the Community Action Agents, and is related to the kind of treatment given to patients in terms of respect. Even though being respectful might seem an obvious behaviour, members of a needy community like the one in Paraisópolis often complain about not being properly treated by the society, in a way that providing them with an egalitarian treatment is directly connected with being socially responsible.

Summarizing, the three critical success factors selected for the customers perspective were: "high quality of care", "education/prevention" and "respect".

- **To satisfy our customers, at which processes must we excel?**

Considering all the answers collected, we defined excellent processes, once again, in three different fronts. The first one consists of well-designed processes. To satisfy customers, processes should be efficient (secure, low waiting times for scheduling a visit, avoiding unnecessary returns etc.), effective (the patient has to be cured or his health condition must be controlled), clear and organized. A second critical factor included in the processes perspective and connected to the first one is the infrastructure, a general term in which we consider the building itself, but also the equipment, materials, medicines etc. It is easy to understand that good processes cannot happen without the support of a good infrastructure and trustable technology and material. The third factor included in this perspective is knowledge management, which comprises both knowledge generation (like in new medical protocols) and especially knowledge sharing, through the disclosure of knowledge generated in the ambulatory and mainly through lessons to resident students or interns.

Summarizing, the three critical success factors selected for the processes perspective were: "well-designed processes", "good infrastructure" and "knowledge management".

- **To satisfy our customers, who should our collaborators be and how should they behave?**

Mentioned as a core value for the ambulatory by many participants in the questionnaire, it is vital for AMPA to keep skilled and updated employees in its staff, in order to maintain the service level. Two other factors were highlighted as essential for AMPA's collaborators to satisfy their customer. They must be motivated and committed to the cause, things that are consequence of good payment, recognition and growth opportunities. Besides, collaborators have to be sensitive and creative in order to break the constantly mentioned cultural barrier between the ambulatory and the community, decrease patients' absenteeism and increase awareness of the importance of health for having a good quality of life.

Summarizing, the three critical success factors selected for the collaborators perspective were: "skilled/updated people", "sensitivity/creativity" and "motivation/commitment".

- **To have excellent processes and people, on what should we invest?**

The learning and growth perspective includes different kinds of investments that should be made to achieve excellence in processes and in people, leading to customer satisfaction and eventually to the fulfilment of the mission. Three main areas of investment were identified in a first moment. The first one was the investment in processes, infrastructure, technology, materials and other physical assets. The second way to learn and growth identified was through the development of good partnerships, with which knowledge could be exchanged. Finally, one of the most repeated needs among participants of the questionnaire was training and continuous learning, something which is already present in the organizational culture and that must be kept as a core investment.

Summarizing, the three critical success factors selected for the learning and growth perspective were: "investments on infrastructure and processes", "development of good partnerships" and "training".

- **How will we raise and control our money to invest on learning and growth?**

As said before, the financial perspective, which is normally related to the mission in for-profit companies, represents a constraint in this case, limiting the amount of investments that can be made to fulfil the mission. Thus, there should be a tight control of the expenses on the one

hand, and a special effort to raise money and increase the budget on the other hand. Once again, three factors were selected for this perspective. The first one is cost control, since costs are a huge concern for any organization. The second one is marketing as a way to promote AMPA, increase the attention to its initiatives and consequently increase the availability of resources to invest. The third factor is the budget increase itself, that is essential independently on whether it is a result of marketing campaigns or any other reason.

Summarizing, the three critical success factors selected for the financial perspective were: “cost control”, “marketing/promotion” and “budget increase”.

With all the questions answered, a first draft of the Strategy Map was drawn, containing five perspectives, namely customers, processes, collaborators, learning and growth, and financial. Each perspective had exactly three critical success factors as discussed above. The first draft can be seen in Appendix 6, still without the arrows connecting the boxes.

The next stage consisted of a minor change in the critical success factors and the inclusion of arrows connecting the boxes, expressing the cause and effect relations among the factors. Since creativity and sensitivity were not considered as important as other characteristics for the successful achievement of the mission, they joined motivation and commitment as one single critical success factor, simplifying the proposed map. The first set of arrows connecting the factors was included by me, according to the relations which I considered more appropriate to be further discussed with the Medical Coordinator and the other collaborators. The second draft of the Strategy Map with the mentioned modifications can be seen in Appendix 7.

A third draft of the Strategy Map for AMPA was drawn in the next stage, after an on-line meeting with the Medical Coordinator. The first important modification was the name of the “learning and growth” perspective, which changed for “investments” perspective. This choice was based on the fact that not all the factors included in that perspective could be classified as “learning” or “growth”, but all of them were certainly some kind of investment, justifying the new choice. The second major change was related to “marketing/promotion”, which was transferred from its previous perspective (financial) to the newly created investments perspective. The rationale behind this choice is that marketing was considered a necessary

investment for the organization, thus being better located in the investments perspective. Aside from these two modifications, some minor changes are listed below:

- The factor “good infrastructure” changed its name for “good infrastructure, technology, materials and medicines”, which was considered a more appropriate description of the factors it represented;
- The factor “well-designed processes” also changed its name for “well-designed, efficient and effective processes”, raising the discussion on what being efficient and effective in this context means;
- The term “creative” was taken away from the critical success factors, because even though creativity is always important for organizations, it was not considered as critical for AMPA’s collaborators;
- Infrastructure and technology were referred as assets for the first time in the investments perspective;
- New connections were created among the different critical success factors;
- Some minor aesthetical changes were also made in the Strategy Map.

The third draft of the Strategy Map, containing the mentioned modifications, is presented in Appendix 8.

This draft of the Strategy Map was presented in the second questionnaire for AMPA’s collaborators, in order to get their suggestions or approval, as well as being a first input for the selection of KPIs for the BSC.

4.3. Validating the Strategy Map and designing the Balanced Scorecard

4.3.1. Questionnaire 2 – Application

Once the third draft of the Strategy Map was released, it was time to validate it and start designing the BSC through the selection of adequate indicators. With this purpose, a second questionnaire (Appendix 2) was designed and distributed among ten collaborators, all of which had participated in the previous questionnaire. The participants were selected by me according to the quality of their answers in Questionnaire 1 and trying to keep a balance among the different areas within the ambulatory.

The participants had a period of one week to answer the questionnaires virtually and return them to me via e-mail. The answers were then collected and organized in a spreadsheet in order to be more easily compared in a visual way. The various answers were classified according to their pertinence and the recurrent ones were highlighted. Comments about the Strategy Map draft were also taken into consideration and generated a few changes to the proposed model, which will be described later.

The list of participants of Questionnaire 2 is presented in Table 5:

| List of participants |
|-----------------------------|
| Administrative Manager |
| Administrative Technician |
| Medical Coordinator |
| Nurse 1 |
| Nurse 2 |
| Pharmacist |
| Physician 1 |
| Physician 2 |
| Social Worker 2 |
| Technical Nurse 2 |

Table 5 - List of participants of Questionnaire 2

4.3.2. Questionnaire 2 – Results

Questionnaire 2 had basically two different objectives: validating the proposed version of the Strategy Map and collecting suggestions of KPIs for the BSC to be designed. The answers collected were summarized and are presented below:

- **Improvements for the Strategy Map:** Among the ten participants, seven answered they fully agreed with the proposed model, not suggesting any kind of change. The three participants which have disagreed with the draft are mentioned in the following and their suggestions are replicated:
 - **Medical Coordinator:** Suggested the exclusion of “development of good partnerships” from the Strategy Map as a critical success factor, since, according to her, the ambulatory has no control over those partnerships, which are defined by the government. Besides, there were a few suggestions of new connections among critical success factors, as well as critics to the already existing ones.
 - **Nurse 1:** Suggested the exclusion of “respect” as a critical success factor, considering it as an intrinsic characteristic of “high quality care”. Also mentioned “safety” as a critical success factor, although she believed it was also intrinsic to “well-designed processes”. Aside from these two suggestions, there was another minor one related to one connection between two critical success factors.
 - **Physician 2:** Suggested the inclusion of “safety” as a critical success factor tightly connected to processes, similarly to what was suggested by Nurse 1.
- **Collection of KPIs for the Balanced Scorecard:** before listing the suggested KPIs, it is worth to mention that unfortunately the answers of four out of the ten participants could not be used for this work for not attending the research requirements, either because the instructions were not clear enough or because of the high complexity of the task. Among the answers of the other six participants, five were considered very useful and one was considered good. Some of the KPIs suggested for each critical success factors are listed below. The numbers between parenthesis indicate the quantity of participants that suggested the same KPI. When there is no number it means that the KPI was suggested by only one participant. One last remark, the KPIs listed are not formally defined at this moment, something that will be done in details later for the ones selected for the BSC.
 - **High quality care:** Number of deaths per hospital stays; average time of customers in the service; average number of consultations per pathology (most

common ones); total number of consultations or procedures; cure index; adherence to drug treatment (most common ones); customer satisfaction index; collaborator satisfaction index.

- **Education/Prevention:** Total number of programs or projects; total number of courses or lectures to the community; quality of programs or projects index; hospitalization index; validation of the information after consultation or procedure; usage of prophylactic medications for asthma; percentage of adherence to prevention campaigns.
- **Respect:** Customer satisfaction index (6); total number of complaints (4); average time in the ambulatory to perform procedures (2); average time to schedule consultation.
- **Good knowledge management:** Number of studies published by collaborators; inter-area knowledge evaluation; adherence to medical protocols; adherence to assistance protocols; number of lessons to resident students.
- **Good infrastructure, technology, materials and medicines:** Collaborator satisfaction index (2); customer satisfaction index; number of non-conformities according to the Internal Commission for Accident Prevention (2); equipment maintenance versus lifetime; number of complaints; equipment purchases over equipment requests index; treatments not performed due to lack of medicines (3); number of complaints about obsolete equipment; satisfaction with IT systems index.
- **Well-designed, efficient and effective processes:** Reduction of unnecessary referrals; reduction of waiting time to schedule consultations and returns (2); reduction of consultation time; reduction of patient's absenteeism (2); number of adverse events (3); customer satisfaction index; percentage reduction of operational costs.
- **Skilled and updated people:** Grades in regular exams (3); competence evaluation; performance evaluation (2); number of non-mandatory courses attended; average score in the Continuous Learning Program; number of congresses attended.

- **Motivated and committed people, sensitive to the community needs:** Collaborator satisfaction index; customer rating on service (3); organizational climate survey (2); collaborators' absenteeism index; turnover index; attendance to administrative meetings index; percentage of solved cases.
- **Investments on assets (infrastructure and technology):** Percentage of budget invested on infrastructure; total investments on infrastructure; average lifetime of equipment of the ambulatory; average time to replace broken equipment; number of people responsible for maintenance; percentage increase of investments on IT.
- **Development of good partnerships:** Total number of partners; percentage of new partners over total partners; percentage of renewed partnerships; rating of existing partnerships; number of public agents trained by the ambulatory; reduction of unnecessary referrals index; number of patients coming from partners; number of interns.
- **Marketing/Promotion:** Evaluation of awareness about AMPA by SBIBAE's employees (3); total number of publications about AMPA in internal/external media (2); evaluation of awareness about AMPA in Paraisópolis community; number of scientific publications from AMPA's collaborators; number of social campaigns.
- **Training:** Number of courses provided to collaborators (4); participation rate of collaborators in courses provided by AMPA (5); average score in the Continuous Learning Program (3); collaborator satisfaction index; attendance to mandatory courses index; percentage of trained collaborators.
- **Costs:** Total expenses with waste (2); cost of materials; savings from implementation of medical protocols; savings from the use of generic medication; total number of employees; average cost per employee; average number of exams per patient; percentage decrease in number of hospital stays; percentage reduction of IT costs.
- **Budget increase:** Percentage increase of budget.

4.3.3. Questionnaire 2 – Discussion

The answers to Questionnaire 2 generated one last reflection about the Strategy Map before the choice of its final version, and provided material to start the design of the BSC. Once again, after the answers were collected and organized, I had an on-line meeting with the Medical Coordinator in which we discussed all the collaborators' suggestions.

Concerning the Strategy Map, the version presented in Questionnaire 2 could be considered reasonably successful, being approved by seven out of ten participants. Moreover, the three other respondents signaled with a partial agreement, proposing just a few punctual changes to the model. After carefully considering each of the suggestions and discussing them one by one with the Medical Coordinator, we accepted all of them and introduced them to the final version of the Strategy Map, which is detailed in the next item.

As mentioned before, not all the participants were able to suggest KPIs for the BSC, and the answers in four out of the ten questionnaires had to be discarded. Some of the participants sent other critical success factors or actions to be taken in order to improve determined conditions, instead of indicators. Others did not send anything at all. Besides, some of the suggested indicators did not have self-explaining names and were not followed by their definition, as asked in the questionnaire. Most of these answers were disregarded in the next steps of the BSC development.

Among the other answers, an analysis was carried out to identify the most commonly suggested indicators, which represented strong potential candidates to compose the BSC, because they were normally easy to measure and highly representative of the factor they were to measure. Therefore, indicators mentioned by two or more participants were highlighted in the list of suggested KPIs. This list was then discussed with the Medical Coordinator and the BSC designing process started.

4.3.4. Strategy Map – Final version

After the application of Questionnaire 2 and the considerably high acceptance by the participants, some last changes were made to the Strategy Map, which reached its final version in the end of this process.

The first important change consisted of the exclusion of “respect” as a critical success factor, accepting the suggestion of Nurse 1, according to which (translated by the author):

“Respect and human treatment are intrinsic to human relations, and are part of the definition of “high quality care”. Thus, I would not set “respect” as a critical success factor.”

In this way, the customer perspective was simplified and was represented by only two critical success factors, namely “high quality of care” and “education/prevention”.

The second major change was made following Medical Coordinator’s suggestion, excluding “development of good partnerships” as a critical success factor, since the ambulatory is subject to governmental choices and has no control over it (translated by the author):

“I have some doubts regarding the inclusion of “good partnerships” as a critical success factor, since we have no control over them (they are imposed by the government).”

Therefore, even though it is still an important and impacting factor for AMPA, it was excluded from the Strategy Map, being considered as a constraint, rather than part of the strategy.

A third change was made, following a mutual suggestion from both Nurse 1 and Physician 2, including the term “safety” to the already existing “well-designed, efficient and effective processes” critical success factor, inside the processes perspective. This choice was made in order to explicit the important of safety within a process, especially when it comes to Healthcare.

A fourth major change consisted of the merger between “good infrastructure, technology, materials and medicines” and “well-designed, safe, efficient and effective processes” critical success factors in processes perspective. The rationale behind this change is that assets like infrastructure or equipment are prerequisites of good processes, and the merger between these two factors simplifies the Strategy Map without loss of content.

Some other minor changes were made to the Strategy Map. The critical success factor “training” changed its name to “collaborators’ training” explicating the subject of the action. The connections among factors were also reconsidered, given the new configuration of the map. Some of the connections suggested by Medical Coordinator were also included to the map.

The final version of the Strategy Map designed for AMPA can be visualized in Appendix 9. It consists of 11 critical success factors identified by the collaborators of AMPA, distributed

among five different perspectives and connected by their cause and effect relations. Table 6 presents the perspectives and critical success factors in the Strategy Map:

| Strategy Map: perspectives and critical success factors | |
|---|---|
| Customers | High quality of care |
| | Education/Prevention |
| Processes | Good knowledge management |
| | Well-designed, safe, efficient and effective processes. Infrastructure, technology and materials |
| Collaborators | Motivated and committed people, sensitive to the community needs |
| | Skilled and updated people |
| Investments | Assets (infrastructure and technology) |
| | Marketing/Promotion |
| | Collaborators' training |
| Financial | Costs |
| | Budget increase |

Table 6 - Strategy Map perspectives and critical success factors

4.3.5. Balanced Scorecard – Designing process

With the Strategy Map and the list of KPIs suggested by AMPA's collaborators in hands, it was time to start designing the BSC for the ambulatory through the selection of the appropriate set of indicators. To simplify this complex task, the process was divided in a few stages which are described in the following:

- **Selection KPIs for each critical success factor:** In a first moment, both the Medical Coordinator and I had the list of suggested indicators and the task of selecting the most appropriate for each of the critical success factors in the Strategy Map. Aiming at a set of approximately 20 indicators for the BSC (in their studies, Gurd and Gao (2007) found a range of 9 to 44 indicators for Healthcare institutions), we had to select 2 indicators for each factor, on average. The rationale behind performing this task separately was developing different sets of indicators according to two different perspectives: mine, as a Management Engineering student and hers, as a Physician and the ambulatory's Medical Coordinator.

The indicators were selected by me based on their pertinence and frequency of citation in the answers of Questionnaire 2. Most of the critical success factors received two indicators, but some factors that were considered vital to the ambulatory and difficult to control received more indicators. This was the case of both "high quality of care" (five indicators) and "well-designed, safe, efficient and effective processes. Infrastructure, technology and materials" (three indicators). On the contrary, "marketing/promotion" and "budget increase" were assigned only one indicator.

The set of indicators selected by me can be seen in Appendix 10, and Appendix 11 contains the indicators selected by the Medical Coordinator, according to her own judgement.

- **Prioritization of the selected indicators:** The next stage consisted of an on-line meeting with the Medical Coordinator, in which both sets of indicators were compared and discussed, in order to agree on the prioritization of the KPIs. The final objective of this step was classifying the indicators in two categories, labelled "musts" and "good to have". "Musts" were indicators considered essential to manage the organization, without which the manager would not have the necessary control over the ambulatory. "Good to have" were auxiliary indicators, with a considerably high importance, but that were not seen as vital for the management level. In any case, "good to have" indicators were kept in a separate list, so that they could be easily accessed in case someone missed an important indicator in the BSC.

The new set of indicators selected after the prioritization process, containing only the "must" indicators, is presented in Appendix 12. It is worth to notice that some of the

indicators might not be included in the previous defined sets, but resulted from the discussion between the Medical Coordinator and me.

- **Checking the feasibility of measuring the selected indicators:** Once the first set of KPIs was defined, the indicators had to be analyzed to check whether the ambulatory had the necessary tools to measure them or not, that is, if the indicators were feasible. The responsible for this task was the Analyst of Managerial Information 1, which received the list of indicators and checked them one by one to verify if AMPA was capable of measuring them at an acceptable cost.

The answer was positive for most of the indicators, since many of them were already measured by the organization although they did not have any formalized PMS. The only indicator which was considered not feasible was “reduction of medicine consumption”, which was actually not yet perfectly defined.

The problem of this indicator was the ambiguity generated by its results. Reducing the consumption of medicines may represent that patients are being cured, which seems to be a good result. On the other hand, new patients included in the system need more medicines, which increases the medicine consumption and is also a good result, because more members of the community are being assisted. Besides, two other factors compromised the feasibility of the indicator. First, some chronic diseases cannot be cured and demand constant consumption of medicine, in a way that the fact that the medicine consumption is not decreasing does not mean that the ambulatory is not being successful in its treatments. Second, some of the medicines have a short expiration date, and in order to guarantee that the patients are correctly following the prescribed treatment, the ambulatory’s pharmacy distributes these medicines on a regular basis, which would also distorts the results of the indicator.

Instead, a similar indicator discussed by the literature in Healthcare was proposed by the Pharmacist, relating the success of treatments to the adherence of patients to pharmacological treatments. In simple words, the medical literature⁵ says that if a

⁵ The medical literature was reviewed by the Pharmacist, and thus is not included in the Bibliography of this work. The articles cited by the Pharmacist are:

Onyirimba, F. et al., 2003. Direct clinician-to-patient feedback discussion of inhaled steroid use: its effect on adherence. *Annals of Allergy, Asthma & Immunology*, 90(4), pp. 411-415.

Santos, D. O. et al., 2010. Pharmaceutical care for patients with persistent asthma: assessment of treatment compliance and use of inhaled medications. *Jornal Brasileiro de Pneumologia*, 36(1), pp. 14-22.

patient consumes at least 80% of the doses prescribed by its doctor, the therapeutic success index tends to be higher, and this is a measure that the ambulatory can easily keep track of.

- **Defining the pathologies and medicines to be tracked:** After the definition of the set of KPIs for the BSC and the substitution of the unfeasible indicator for a feasible one, there were still two indicators to be completely defined: “average number of consultations per pathology”, in which the pathologies to be measured had to be selected, and “adherence to pharmacological treatments”, for which a specific medicine should be chosen.

The choice of the most appropriate diseases and medicine was based on a statistical analysis realized by the Medical Coordinator, the Analyst of Managerial Information 1 and the Pharmacist. To choose the appropriate pathologies, the Medical Coordinator and Analyst of Managerial Information 1 assessed the ambulatory database and ranked all the cases in the two previous years according to their frequencies. Then, they picked the three most usual chronic diseases in the list: asthma (872 patients and 1.423 consultations in 2012), allergic rhinitis (675 patients and 689 consultations in 2012) and obesity (626 patients and 857 consultations in 2012). The choice for chronic diseases is based on the fact that they imply a longer treatment and involve normally more than one specialist, increasing the value comprised in the indicator. The choice for the most frequent diseases increases the statistical value of the sample. The choice for the medicine to be monitored was made by the Medical Coordinator assisted by the Pharmacist, which selected Salmeterol+Fluticasona-Seretide®, a drug which is constantly prescribed for asthma treatment. Evidently, since asthma is the most frequent disease among the ambulatory patients, the medicine selected is among the most demanded in the pharmacy. Besides, approximately 99% of the patients are advised to withdraw the medicine in the pharmacy monthly (the medicine is consumed 30 days, normally), which facilitates the statistical control of its consumption.

- **Filling the Balanced Scorecard with past information:** With the complete set of indicators clearly defined, the next stage consisted of the inclusion of past information, when available, to fill the BSC and simulate its usage. This was actually the preparation of the third questionnaire, in which participants were asked to evaluate the tool. The

idea of inserting past information was to provide participants with a more realistic experience when experiencing the tool, giving them the possibility of visualizing past trends and letting them conclude if they were “on control” of the organization.

To gather the necessary data, once again the Analyst of Managerial Information 1 played a crucial role, contacting the owners of such information and accessing AMPA’s database to collect past numbers and generate the indicators. Unfortunately, not all the indicators could be calculated, because some of the activities were not being measured in the past or because the information was quite scattered along the organization, since they did not have any formal PMS. The numbers that could be collected are presented in Appendix 13.

The first draft of the BSC including past information was then inserted to Questionnaire 3, in which participants were asked to suggest changes or validate the proposed model. Questionnaire 3 and its outcomes are discussed in details later in the next section of this work.

4.4. Validating the Balanced Scorecard

4.4.1. Questionnaire 3 – Application

With the Strategy Map already defined and the design of a first version of the BSC for AMPA, a third questionnaire (Appendix 3) was prepared and distributed to six collaborators in the ambulatory, aiming at validating the proposed model or obtaining suggestions for possible improvements. This time, participants were selected by the Medical Coordinator and me according to the proximity of their positions to the managerial level of the organization. The rationale behind this choice was presenting the model to its most probable final users. All the participants had also answered Questionnaire 1, but not necessarily Questionnaire 2.

Once again, participants had one week to answer the questionnaire virtually and return them to me via e-mail. The answers were collected and organized in a new spreadsheet, in which they could be more easily compared. In the end, a summary containing the most relevant mentioned issues was prepared to start the discussion on the topics.

The list of participants of Questionnaire 3 is presented in Table 7:

| List of participants |
|-------------------------------------|
| Administrative Manager |
| Analyst of Managerial Information 1 |
| Medical Coordinator |
| Pharmacist |
| Physician 2 |
| Physician 3 |

Table 7 - List of participants of Questionnaire 3

4.4.2. Questionnaire 3 – Results

Questionnaire 3 had two different objectives: validating the proposed model of the BSC and assessing whether participants were in favour of linking reward systems to performance. The answers collected were summarized and are presented below:

- **Improvements for the Balanced Scorecard:** Among the six participants in this questionnaire, three fully agreed with the proposed model, not giving any kind of suggestion for its improvement and considering themselves in control of the organization with the tool in hands. The other three identified gaps in the model, highlighting important indicators that were missing according to them. Some of the indicators present in the scorecard were also criticized, particularly due to a supposedly overlapping among them. These three participants answered that they did not feel in control of the organization with the suggested model, but the few changes proposed by them could fix the existing problems. The suggestions given by each participant are exhibited below:
 - **Pharmacist:** Criticized the shortage of productivity KPIs, proposing the inclusion of indicators such as “idleness”. Also criticized the inclusion of both “average score of collaborators in the Continuous Learning Program” and “number of courses offered to collaborators” in the BSC, which, according to the Pharmacist, represented an overlap of information.

- **Physician 2:** Suggested the exclusion of obesity as one of the diseases to be monitored by the KPI “average number of consultations”. According to Physician 2, this is a disease which takes time to be controlled and does not imply medical failure.
- **Physician 3:** Criticized the shortage of effectiveness indicators, suggesting the inclusion of KPIs like “cure index” or “hospital discharges per year”. Besides, Physician 3 identified a possible overlapping of two indicators, considering “average number of consultations” for “asthma” and “allergic rhinitis” as very similar KPIs.
- **Linking reward systems to performance:** All the participants declared themselves against the linkage between remuneration and performance in the BSC or at least in a first moment. The Medical Coordinator stated that although bonuses may be motivating, the simple establishment of targets for the indicators in the BSC is enough to motivate the team. The Administrative Manager, the Analyst of Managerial Information 1, the Pharmacist and Physician 2 answered that this linkage should be avoided or at least in the first year. One of the reasons mentioned was the fact that individuals were not able to directly interfere in the indicator results, and thus should not be awarded according to the KPIs. Physician 3 was the only one to consider the possibility of linking payment to performance, but stated that this connection should be created only if the bonus was substantial. Otherwise, it would be better not to have the linkage.

4.4.3. Questionnaire 3 – Discussion

This questionnaire had as one of its objectives validating the proposed model for the BSC. However, only three out of the six participants approved the first version, which could not be considered as a satisfactory result. Thus, after organizing the answers, I had one more on-line meeting with the Medical Coordinator, in which we discussed the suggestions given by the Pharmacist, and Physician 2 and 3 to define whether they should be accepted or refused.

The controversial topics and the respective discussion about them are replicated in the following, as well as the actions taken to improve the proposed model or the reasons why some suggestions were refused:

- **Inclusion of more indicators of productivity:** The Pharmacist criticized a supposedly shortage of productivity indicators in the scorecard, a topic that was addressed in my on-line meeting with the Medical Coordinator. As an answer, she told me that the major cause of idleness in the ambulatory is, by far, the patients' absenteeism. When patients do not attend a consultation, doctors become idle, decreasing the ambulatory productivity. Therefore, controlling patients' absenteeism (an indicator that is already included in the BSC) is an indirect way to measure AMPA's productivity. Besides, the indicator "number of new cases" is a direct measure of productivity, given that it counts all the new patients that are treated by the ambulatory. In addition, the Medical Coordinator informed me that in the past, productivity indicators such as "total number of patients" were extremely important, and in order to reach the targets set, previous managers were creating orientation groups only to increase the number of patients in the service, which somehow characterizes a form of dysfunctional behaviour. For all of these reasons, no further actions were taken in relation to this suggestion.
- **Inclusion of more indicators of effectiveness:** Physician 3 suggested the inclusion of effectiveness indicators, such as "hospital discharges per year" or "cure index". Once again, the suggestion were discussed with the Medical Coordinator. Although the "cure index" can be considered an important indicator, it may not be so appropriate for the ambulatory, since a high percentage of the patients present chronic diseases, many of which cannot be cured. Therefore, better than calculating the "cure index" is monitoring the "average number of consultations" to control specific diseases, as proposed in the first model of the BSC. Concerning the "hospital discharges per year", it is simply the combination of two already existing indicators: "average number of consultations per pathology" and "number of new cases". For these reasons, we concluded that there is no shortage of effectiveness indicators in the BSC and no further action was taken in relation to this suggestion.
- **Overlap between "average score of collaborators in the Continuous Learning Program" and "number of courses offered to collaborators":** This statement by Pharmacist was also discussed with the Medical Coordinator. First, it is important to differentiate both indicators. "Average score of collaborators in the Continuous

Learning Program” measures the collaborators’ effort in order to grow and develop themselves, checking whether they are indeed participating on trainings, courses, and congresses, as well as if they are generating knowledge and sharing it through publications. “Number of courses offered to collaborators”, on the other hand, measures the organization’s effort to provide its collaborators with opportunities to grow, that is, this indicator is related to AMPA’s investments on its employees, while the first one measures if collaborators are indeed improving. There is obviously a connection between the two indicators, but they are not measuring the same things.

However, since the comment was coherent, we decided to check whether it was possible to find a third indicator which could avoid this overlapping. Some of the possibilities were the “average score of collaborators in the technical evaluation” and the “average score of collaborators in the competence evaluation”, both activities that the ambulatory was already performing. The first one consists of a regular exam taken by some of the employees to check if they are updated in technical terms. This exam, though, is not taken by all collaborators, can be done in groups and with access to support material, factors that disregard it as a good indicator for the BSC. The second one, the competence evaluation, is a self-evaluation, which is later discussed with the manager, but, as every self-evaluation, it is extremely subjective and cannot be considered as a strong indicator for the BSC.

Therefore, in order to possibly find a more appropriate indicator, a fourth questionnaire was designed asking for suggestions of new indicators to measure this issue. The questionnaire and its results are described in the next section of this work.

- **Pathologies to be monitored by the indicator “average number of consultations”:**
The indicator “average number of consultations per pathology” was criticized by two different participants. Physician 2 referred to obesity as a disease which takes long to be treated and considered this long treatment period as something that doctors cannot control (translated by the author):

“Although it has a high incidence over our patients, I think that obesity is a disease that takes long to be cured and this fact does not imply medical failure.”

Although this statement is true, it does not mean that doctors are unable to increase their efficiency and control the disease in a shorter period. The idea of this indicator is not to low the number of consultations to zero, but to decrease it from its previous levels. This means that, setting the appropriate targets, there is no need to change the indicator.

The second participant to criticize this indicator was Physician 3, according to which asthma and allergic rhinitis are similar diseases and that controlling both of them instead of another one is a waste.

“(…) asthma and rhinitis. Maybe it would be better to select only one of them. In this case, I would suggest asthma, since it is universally accepted as an indicator (recognized by the JCI) and it is easier to measure if the treatment is being effective, control medications etc.”

As stated before, the choice for these diseases was based on the frequency in which they appeared in the ambulatory, so that they could be more representative. This comment, however, was considered pertinent (even though asthma and rhinitis are not the same pathology) and we decided to review the choices of diseases to be monitored by the indicator. To do so, this question was also addressed in Questionnaire 4, in which the Physicians were asked to rank which diseases they would like to monitor in the BSC.

The other question answered by participants concerned the linkage between remuneration and performance measured by the BSC. The general refusal in the answers was already expected, since the literature says that, even though this link is usual in the industry, NPOs and organizations in the Healthcare sector tend not to employ this kind of method (Greiling, 2010; Tuan, 2012). When asked about the possibility, the Pharmacist answered (translated by the author):

“Not in a first moment. Maybe in the future, but only if all the collaborators can interfere in the results measured by the indicators.”

Since the empirical data went according to the literature, we decided not to further discuss this issue, concluding that remuneration and performance will not be linked in the ambulatory.

4.4.4. Questionnaire 4 – Application

The proposed model for the BSC was approved by half the participants in Questionnaire 3, while the others suggested a few changes concerning specific indicators. Questionnaire 4 was specially designed to solve these issues, inviting six Physicians, the Medical Coordinator and the Analyst of Managerial Information 1 to share their opinion on the discussed indicators. The choice for the doctors is explained by the fact that one of the questions was specifically related to the treatment of diseases, and they were considered more appropriate to deal with the topic. Except for Physicians 5 and 6, all the participants in this questionnaire had also participated in the first one, but not necessarily in the others.

This time, participants had only three days to answer the questionnaire virtually and return them to me via e-mail. The answers were collected and organized in a new spreadsheet, in which they could be more easily compared. The scores attributed to the selected diseases were organized in a matrix to decide which pathologies would compose the indicator for the BSC.

The list of participants of Questionnaire 4 is presented in Table 8:

| List of participants |
|-------------------------------------|
| Analyst of Managerial Information 1 |
| Medical Coordinator |
| Physician 1 |
| Physician 2 |
| Physician 3 |
| Physician 4 |
| Physician 5 |
| Physician 6 |

Table 8 - List of participants of Questionnaire 4

4.4.5. Questionnaire 4 – Results

Questionnaire 4 had only two simple and direct questions, aiming at solving very specific issues. The answers collected were summarized and are presented below:

- **Methods to evaluate collaborators:** Among the eight participants of the questionnaire, three replied that the methods currently used are not subjective and that they consider them adequate to evaluate the collaborators' knowledge and performance. Three other participants answered they support the current methods, even though they may be subjective. The only new suggestions came from Physicians 1 and 4. Physician 1 proposed that doctors could be evaluated according to a monograph, which would be produced on a yearly basis by each of them, discussing some specific pathology of their interest or developing a new protocol, for example. Physician 4, in turn, suggested an evaluation based on the number of complaints or compliments received by the doctors or number of adverse events.
- **Pathologies to be monitored in the Balanced Scorecard:** Each participant was asked to rank the three most meaningful diseases to be monitored by the BSC. The first disease in each ranking received three points, the second, two points and the third, one point. The score for each disease was then summed and the final ranking is presented in Table 9:

| Pathology | Score |
|----------------------------|-------|
| Asthma | 18 |
| Obesity | 15 |
| Allergic rhinitis | 4 |
| Functional bowel disorders | 3 |
| Reflux disease | 3 |
| Development disorders | 2 |
| Diabetes | 2 |
| Headache/Migraine | 1 |

Table 9 - Ranking of pathologies to be monitored in the Balanced Scorecard

As it can be observed, the most voted pathologies were asthma (18 points), obesity (15 points) and allergic rhinitis (4 points).

4.4.6. Questionnaire 4 – Discussion

The answers in Questionnaire 4 proved that the originally proposed model was generally accepted by collaborators in AMPA. The suggestions presented by the Pharmacist was refused by the majority of the participants, and there was no agreement on the third pathology to be monitored by the BSC, with allergic rhinitis receiving a slightly higher score than its competitors. In the following a short discussion on the topics approached by Questionnaire 4 is presented, as well as the decisions made as consequence:

- **Keeping the same methods to evaluate collaborators:** six out of the eight participants said that the currently used methods are not subjective or that they would not change them, which shows that they are reasonably satisfied with these methods. Physician 6, for example, answered the following (translated by the author):

“I believe that the methods currently used by the institution are enough for our evaluation. We are frequently tested by virtual exams, in terms of both technical knowledge and alignment with institutional rules and the JCI requirements. Besides, we have an annual direct evaluation with our manager. Finally, in order to evaluate our updating, there is nothing more appropriate than the Continuous Learning Program, which is already performed.”

Among the two others (Physicians 1 and 4), it is important to notice that all the given suggestions are methods to evaluate only doctors' performance, and cannot be applied to most of the other collaborators. Physician 4 proposed the use of complaints and compliments or adverse events to evaluate doctors. The number of complaints was an indicator considered to integrate the BSC in the beginning of the process, but was not selected because the element which it measures (customer satisfaction) is already comprised in the customer satisfaction index, and thus including both of them in the BSC would be redundant. The number of adverse events, in turn, is already included as an indicator in the BSC, thus it was not considered again. Physician 4 suggested the implementation of a new routine, in which each doctor would be responsible for producing a monograph on a yearly basis. Although it was an interesting proposal and the suggestion was taken to the Medical Coordinator, it could not be included in the BSC for a series of reasons. First, this is an activity that could be

performed only by doctors, and thus would not measure the skills and updating of the whole team. Second, it is more a knowledge generation activity than an evaluation method. Third, the evaluation would be even more subjective than a technical exam. For these reasons, this suggestion was not taken.

- **Definition of the pathologies to be monitored:** Curiously enough, there was no change in the pathologies to be monitored comparing to the first version of the BSC. An analysis of the given answers shows that asthma and obesity were two generally agreed diseases to be controlled by the BSC. All the participants ranked asthma among the three priorities, half of them considering it the top one. Obesity, in turn, was cited by six out of the eight participants. There was no agreement, however, on the third disease to be monitored. No other pathology was cited by more than two participants, and allergic rhinitis was the only one to get more than three points, which ranked it as third place. Therefore, the pathologies selected were the same proposed in the first version of the BSC.

Questionnaire 4 ended with no changes to the proposed model of the BSC. This, though, was a meaningful step in order to validate the model, since the questionnaire, together with the previous one, proved that, in general, collaborators were satisfied with this version of the tool. With all the indicators officially defined, it was time to finally structure the KPIs in the BSC.

4.4.7. Balanced Scorecard – Final version

Questionnaire 3 arose some questions related to the indicators included in the first version of the BSC for AMPA, but Questionnaire 4 showed that, in general, collaborators were satisfied with the model, that currently needed no changes. Therefore, the final version of the BSC for the ambulatory kept the same KPIs listed in Appendix 12, with only minor modifications, which were organized and are presented in Table 10:

| Balanced Scorecard for AMPA | |
|-----------------------------|---|
| Customers | Number of new cases |
| | Average number of consultations (allergic rhinitis, asthma, obesity) |
| | Customer satisfaction index – Health |
| | Adherence to pharmacological treatments (Salmeterol+Fluticasona) |
| | Patients' absenteeism in scheduled returns |
| Processes | Number of adverse events |
| | Average time to schedule consultation |
| | Number of scientific publications |
| | Average number of hours of training per student |
| Collaborators | Number of severe and catastrophic events |
| | Average score in the Continuous Learning Program |
| | Collaborators' absenteeism index |
| | Collaborator satisfaction index |
| | Customer satisfaction index – Service |
| Investments | Percentage of budget invested on infrastructure |
| | Number of publications referring to AMPA in internal or external medias |
| | Number of courses per collaborator |
| Financial | Percentage budget increase |
| | Average cost per patient treated |
| | Percentage cost reduction due to the use of medical protocols |

Table 10 - Balanced Scorecard for AMPA

The final version of the BSC designed for AMPA consists of the same five perspectives present in the Strategy Map (customers, processes, collaborators, investments, and financial) and a total of 20 KPIs, one of which is unfolded in three indicators. The following sections define each indicator individually, explain its objectives, set the measurement frequency, discuss some of the advantages over other similar indicators, point out possible failures and indicate how other indicators present in the BSC or specific actions can overcome these failures.

4.4.7.1. Number of new cases

- **Definition:** Number of new cases registered in the ambulatory.
- **Objective:** To control the number of new cases in the ambulatory, indirectly measuring the number of patients treated by the program as a way to quantitatively assess the “volume” of services provided to the community. The higher the value, the better, indicating that more patients are being treated, which increases the health in the community, and thus customer satisfaction. It is similar to the indicator “growth of ambulatory consultations”, discussed by Urrutia and Eriksen (2005).
- **Frequency:** Monthly.
- **Advantages:** Controlling the number of cases instead of the number of patients in the system guarantees that only treatments will be counted, preventing the indicator from dysfunctional behaviour such as creating orientation groups to increase the total number of patients. Besides, considering only “new” cases ensures that former patients and unsolved cases are not being counted every month.
- **Disadvantages:** In order to enhance numbers, managers can increase the offer of services lowering the consultation time, thus decreasing the service quality.
- **Overcoming the disadvantages:** This type of dysfunctional behaviour would be easily identified by other indicators, such as customer satisfaction indexes, collaborators satisfaction index and number of adverse, severe or catastrophic events, which would alert for the problem.

4.4.7.2. Average number of consultations (allergic rhinitis, asthma, obesity)

- **Definition:** Average number of consultations needed to discharge a patient after the pathology is under control. This indicator will be calculated for three different diseases: allergic rhinitis, asthma and obesity.

- **Objective:** To monitor the number of consultations an average patient has to go through in order to control a specific pathology. A high number of consultations implies costs and dissatisfies customers, thus this number has to be decreased, when possible. It resembles the indicator “discharge timeliness” discussed by Gurd and Gao (2007), in a sense that both measure how efficiently the Healthcare institution is when treating its patients.
- **Frequency:** Semi-annually.
- **Advantages:** Measuring the efficiency and effectiveness of treatments in the ambulatory. If the right targets are set, the management will be able to monitor whether the medical team is being able to treat patients with less resources and in a shorter time, increasing the ambulatory’s capacity of receiving new patients.
- **Disadvantages:** In order to obtain better results, doctors can discharge patients before they are actually cured or the disease is controlled.
- **Overcoming the disadvantages:** The consequences of this kind of misbehaviour would be exposed by other indicators, such as customer satisfaction index – health and number of adverse, severe and catastrophic events. Besides, a patient that is discharged before being cured will certainly come back to the ambulatory, affecting this indicator itself.

4.4.7.3. Customer satisfaction index - Health

- **Definition:** Average rating obtained in the customer satisfaction survey about health in the community.
- **Objective:** To monitor the customers’ opinion in relation to the quality of care provided to the community. It goes along with the indicator “patient satisfaction index”, discussed by Grigoroudis, et al. (2012).
- **Frequency:** Monthly.
- **Advantages:** Considering the opinion of external stakeholders about the services provided by the ambulatory.
- **Disadvantages:** To assess the customer opinion, it is necessary to run customer satisfaction surveys on a regular basis, which implies costs and effort.

- **Overcoming the disadvantages:** The ambulatory already performs this kind of activity, so no significant changes are needed.

4.4.7.4. Adherence to pharmacological treatments (Salmeterol+Fluticasona)

- **Definition:** Units of Salmeterol+Fluticasona, in its two presentations available in the program (Seretide® 25/50 and 25/125), that are withdrawn from the pharmacy over the total number prescribed by doctors.
- **Objective:** To check whether patients are performing the treatments prescribed by doctors, which increases the chances of cure.
- **Frequency:** Monthly.
- **Advantages:** It is able to identify possible miscommunications between doctors and patients, that is, if patients are not adhering to pharmacological treatments, the management will be notified, and an investigation can be done in order to understand why the doctors' prescriptions are not being followed.
- **Disadvantages:** The fact that patients are withdrawing medicines from the pharmacy does not imply that they are getting cured or that the treatment is being successful.
- **Overcoming the disadvantages:** This KPI needs complementary indicators, like the average number of consultations to check whether patients are being effectively cured or if their diseases are being controlled.

4.4.7.5. Patients' absenteeism in scheduled returns

- **Definition:** Number of patients' absences in scheduled returns over total number of scheduled returns.
- **Objective:** To verify if the community is also committed with its own health.
- **Frequency:** Monthly.
- **Advantages:** It is able to assess whether the community is able to understand the importance of a continuous treatment and if the ambulatory team is able to pass this message. Besides, it can identify in which proportion patients are responsible for bad treatment results. Finally, it is also a measure of productivity for the ambulatory, since doctors become idle when their patients do not come to the consultation.
- **Disadvantages:** It is not able to understand the causes of the absence, if it was for negligence or for some fair reason.

- **Overcoming the disadvantages:** All kinds of activities are subject to absenteeism. If through the control of this indicator the ambulatory is able to decrease absenteeism indexes, it is already enough to improve results.

4.4.7.6. Number of adverse events

- **Definition:** Number of adverse events registered in the ambulatory.
- **Objective:** To control whether processes are being correctly performed in the ambulatory. It goes along with the indicator “serious incidents”, discussed by Gurd and Gao (2007).
- **Frequency:** Monthly.
- **Advantages:** It is able to monitor the processes inside the ambulatory, and also customers’ opinion, working as a quality indicator.
- **Disadvantages:** It does not differentiate the nature of events.
- **Overcoming the disadvantages:** High levels of adverse events must be studied to understand the nature of identified problems and try to take effective actions to overcome them.

4.4.7.7. Average time to schedule consultation

- **Definition:** Average number of days between scheduling a consultation and executing it.
- **Objective:** To monitor the patients’ waiting time. It goes along with the indicator “outpatient waiting time”, discussed by Chen, et al. (2006).
- **Frequency:** Semi-annually.
- **Advantages:** It is a simple measure that assesses, at the same time, the efficiency in AMPA’s processes and a factor that directly affects the customer experience.
- **Disadvantages:** It is not able to differentiate the nature of consultations. In this way, diseases that must be treated by some particular specialist that comes only once a week are mixed with diseases that can be treated by any doctor.
- **Overcoming the disadvantages:** Outlier cases that demand a specific specialist can be excluded from the math, if the management considers it more appropriate.

4.4.7.8. Number of scientific publications

- **Definition:** Number of publication in scientific journals by AMPA's collaborators.
- **Objective:** To check if the ambulatory is able to generate knowledge. It goes along with the indicator "publications", discussed by Gurd and Gao (2007).
- **Frequency:** Annually.
- **Advantages:** It is an effective and easy way to check if the ambulatory is able to produce scientific knowledge.
- **Disadvantages:** Since this is a secondary activity for the ambulatory, collaborators tend not to publish scientific works without another form of incentive.
- **Overcoming the disadvantages:** Indicators, such as the score in the Continuous Learning Program, which are attributed individually to collaborators, can motivate them to produce more knowledge.

4.4.7.9. Average number of hours of training per student

- **Definition:** Number of hours dedicated to teaching and training interns and resident students divided by the total number of interns and resident students.
- **Objective:** To assess the attention the ambulatory gives to students that are training to become professionals in a near future, as a qualitative indicator of the knowledge shared by the ambulatory.
- **Frequency:** Semi-annually.
- **Advantages:** It is an indirect way to measure the quality of education provided by the ambulatory, supposing that the more hours of education a student receives, the better his performance will be.
- **Disadvantages:** It does not measure the number of students the ambulatory is training, that is, it works as a qualitative indicator, but not as a quantitative one. Therefore, it can be manipulated through a dysfunctional behaviour known as denominator management, in which the manager can easily decrease the denominator (in this case, the number of students) in order to increase the value of the indicator.
- **Overcoming the disadvantages:** The choice for this indicator instead of "total number of training hours" or "number of students trained by the institution" points out the

importance that AMPA puts on the quality of its interns and residents, rather than their quantity. Since there are no major incentives for such form of misbehaviour, we do not believe that a manager would act like this. In any case, the ambulatory can keep track of the number of students trained by the institution, even though this indicator is not included in the BSC.

4.4.7.10. Number of severe and catastrophic events

- **Definition:** Number of severe and catastrophic events registered in the ambulatory.
- **Objective:** To evaluate if the team is ready and qualified to avoid severe and catastrophic events. It goes along with the indicator “serious incidents”, discussed by Gurd and Gao (2007).
- **Frequency:** Semi-annually.
- **Advantages:** It helps to control the frequency of occurrence of the most critical events in the ambulatory, alerting for urgent measures to be taken.
- **Disadvantages:** It does not indicate the nature of the events.
- **Overcoming the disadvantages:** Differently from “adverse events”, “severe and catastrophic events” must be analyzed individually and their occurrence must be completely avoided, so this indicator works as an alert for these extreme situations.

4.4.7.11. Average score in the Continuous Learning Program

- **Definition:** Average score of collaborators in the Continuous Learning Program (already existing in the ambulatory).
- **Objective:** To monitor if collaborators are continuously improving and getting updated, through courses, trainings, participation in congresses, publication of scientific works, in order to improve the skills of the team and the quality of the service provided to customers. It is similar to the indicator “continuing education credits”, discussed by Gurd and Gao (2007).
- **Frequency:** Semi-annually.
- **Advantages:** It is extremely objective, can be measured for all collaborators and considers a wide range of activities, giving a different score to them according to their nature, which makes this indicator more complete and applicable.

- **Disadvantages:** The simple participation in events like courses and trainings does not guarantee that individuals effectively learned and improved. It is necessary to use some other method to evaluate if the knowledge was indeed absorbed.
- **Overcoming the disadvantages:** This problem would indirectly reflect in a variety of other indicators, such as customer satisfaction indexes, number of scientific publications, and number of adverse, severe and catastrophic events. Another way to check if collaborators are updated is through technical exams and competence evaluations, two activities currently performed by AMPA that are not included in the BSC.

4.4.7.12. Collaborators' absenteeism index

- **Definition:** Number of work-hours lost due to absenteeism over total number of work-hours available.
- **Objective:** To measure collaborators' commitment with their work. It goes along with the indicator "employee absenteeism index", discussed by Grigoroudis, et al. (2012).
- **Frequency:** Monthly.
- **Advantages:** It is easy to calculate and works also as an indicator of productivity.
- **Disadvantages:** It is not able to understand the causes of the absence, if it was for negligence or for some fair reason.
- **Overcoming the disadvantages:** All kinds of activities are subject to absenteeism. If through the control of this indicator the ambulatory is able to decrease absenteeism indexes, it is already enough to improve results.

4.4.7.13. Collaborator satisfaction index

- **Definition:** Average rating obtained in the organizational climate survey about collaborators' satisfaction with work.
- **Objective:** To measure the satisfaction of collaborators with their work, working environment, colleagues, leaders, subordinates, and all other factors that can affect the working life. It goes along with the indicator "employee satisfaction index", discussed by Grigoroudis, et al. (2012).
- **Frequency:** Semi-annually.

- **Advantages:** Considering the opinion of all collaborators, with no distinction of job or position.
- **Disadvantages:** The rating itself does not indicate which are the existing problems that have to be solved.
- **Overcoming the disadvantages:** As every satisfaction index, this index must be constantly controlled, and in case of bad results, further investigation is needed to understand the causes and solve the existing issues.

4.4.7.14. Customer satisfaction index - Service

- **Definition:** Average rating obtained in the customer satisfaction survey about services provided by the ambulatory.
- **Objective:** To monitor the customers' opinion in relation to the quality of services provided by AMPA. It goes along with the indicator "patient satisfaction index", discussed by Grigoroudis, et al. (2012).
- **Frequency:** Monthly.
- **Advantages:** Considering the opinion of external stakeholders about the services provided by the ambulatory, and alerting to collaborators' misbehaviour.
- **Disadvantages:** To assess the customer opinion, it is necessary to run customer satisfaction surveys on a regular basis, which implies costs and effort.
- **Overcoming the disadvantages:** The ambulatory already performs this kind of activity, so no significant changes are needed.

4.4.7.15. Percentage of budget invested on infrastructure

- **Definition:** Amount of capital invested on fixed assets over the total annual budget.
- **Objective:** To monitor if the ambulatory is investing on infrastructure and technology, in order to make sure that it is well-equipped, with new and modern technology, and with adequate facilities. It is similar to the indicator "budget percentage invested in new technologies", discussed by Grigoroudis, et al. (2012), but extends the measure to other infrastructure investments.
- **Frequency:** Annually.
- **Advantages:** The measure is relative to the total budget, which turns the targeted investment independent of the yearly budget.

- **Disadvantages:** An excessive investment on fixed assets can implicate shortage in other areas.
- **Overcoming the disadvantages:** It is important to set reasonable targets, which should be strictly followed, that is, differently from other indicators, the aim in this one is not maximizing or minimizing the indicator, but being close to the target value.

4.4.7.16. Number of publications referring to AMPA in internal or external medias

- **Definition:** Total number of publications that make reference to AMPA in internal or external medias.
- **Objective:** To check whether the work developed inside the ambulatory is disclosed to SBIBAE's collaborators and the society as a whole.
- **Frequency:** Semi-annually.
- **Advantages:** It considers all different kinds of media and public, and good results in the indicator can motivate the team.
- **Disadvantages:** It can be easily increased through marketing initiatives that are not related to the core business of the organization, which means that the management can lose its focus on the main activity to improve the numbers in secondary activities.
- **Overcoming the disadvantages:** The management must be sensible when judging which should be the marketing initiatives that are worth the investment.

4.4.7.17. Number of courses per collaborator

- **Definition:** Sum of the number of participants in all free courses provided by AMPA divided by the total number of collaborators.
- **Objective:** To assess if the ambulatory is investing on its collaborators, providing them with opportunities to learn and grow. It resembles the indicator "training time", discussed by Gurd and Gao (2007).
- **Frequency:** Annually.
- **Advantages:** It measures at the same time the quantity of courses provided and the attendance to courses.
- **Disadvantages:** It considers only opportunities offered by the organization for free to its collaborators, not being able to assess if they are improving by other means that are not counted by this indicator.

- **Overcoming the disadvantages:** The indicator average score in the Continuous Learning Program is able to measure also employees' initiatives, complementing this one.

4.4.7.18. Percentage budget increase

- **Definition:** Difference between budget in the current year and budget in the previous year over budget in the previous year.
- **Objective:** To assess the availability of resources to maintain the ambulatory's activities and to invest on its improvement. It is similar to the indicator "amount of funds raised", discussed by Gurd and Gao (2007).
- **Frequency:** Annually.
- **Advantages:** It is able to verify if AMPA is being successful in raising money from SBIBAE through its marketing initiatives and appreciated services.
- **Disadvantages:** AMPA has little control of the indicator. The budget is basically imposed by SBIBAE.
- **Overcoming the disadvantages:** The solution for AMPA is to perform well its activities and increase its recognition, showing to SBIBAE that it can bring beneficial returns in terms of brand image, for example, thus pressuring the organization to increase the availability of resources to invest on the ambulatory.

4.4.7.19. Average cost per patient treated

- **Definition:** Total costs over number of patients treated (discharges).
- **Objective:** To measure AMPA's efficiency when treating its patients, checking if the organization is capable of providing care at a low cost. It goes along with the indicator "cost per case", discussed by Gurd and Gao (2007).
- **Frequency:** Semi-annually.
- **Advantages:** Evaluating the cost per patient instead of the cost per consultations guarantees that this indicator not only measures cost efficiency, but also effectiveness of treatments. The measure of cost per consultation can be manipulated increasing the number of consultations, which is not beneficial for the ambulatory and the community. The measure of cost per patient, in turn, can be manipulated only if the

number of patients is increased, which is beneficial for the community, and thus also to AMPA.

- **Disadvantages:** Decreasing the average cost per patient may imply lowering the quality of the service or of the material used, which would be extremely negative to AMPA.
- **Overcoming the disadvantages:** In case it happens, other indicators, such as customer satisfaction indexes, collaborator satisfaction index or number of adverse events would alert for the fact.

4.4.7.20. Percentage cost reduction due to the use of medical protocols

- **Definition:** Estimated percentage cost reduction due to the use of medical protocols (Total number of treatments using protocols multiplied by the average cost reduction due to the use of protocols divided by total costs).
- **Objective:** To observe if the ambulatory is able to design and implement strategies to decrease costs and increase efficiency. It resembles the indicator “new protocols and procedures”, discussed by Urrutia and Eriksen (2005), but focuses more specifically on the financial consequences of these initiatives.
- **Frequency:** Semi-annually.
- **Advantages:** It measures whether the ambulatory is able to follow an important trend in medicine, simplifying processes and decreasing costs.
- **Disadvantages:** It is difficult to calculate.
- **Overcoming the disadvantages:** The ambulatory must keep good records of its activities, which implies having the appropriate IT systems and people devoted to work on this data.

5. Discussion

The aim of this chapter is to discuss in details the final results of this work, recapturing some concepts of the literature and observing how they were applied in this case. The chapter is divided in two parts, representing the two main outcomes of this project. The first one discusses the Strategy Map developed to clarify the strategy that AMPA should follow in order to achieve its mission. The second makes some considerations on the designing process and the final version of the Balanced Scorecard, ending with a discussion on some implementation issues that were not tackled so far.

5.1. The Strategy Map for AMPA

In chapter 4, the whole development process of the Strategy Map for AMPA was described in details, and the final version of the model is presented in Appendix 9. The objective of this section is to analyze and discuss the designing process of the Strategy Map, its final version, the division in five different perspectives and the critical success factors identified in each perspective.

In order to facilitate this discussion, it was divided in different topics, starting from some considerations on the designing process, and going through the analysis of each of its dimensions and critical success factors.

5.1.1. Considerations on the Strategy Map designing process

The development of the Strategy Map for AMPA was an iterative process that took approximately two months, in which 20 ambulatory collaborators had active participation from the very beginning, defining AMPA's mission, designing a strategy to fulfil that mission and identifying the critical success factors to implement the designed strategy. By answering two questionnaires (Questionnaires 1 and 2) and designing their own Cognitive Maps, they provided enough material for me to gradually design the Strategy Map, a process that went through four different versions of the tool.

The decision of involving collaborators in the designing process of the Strategy Map goes along with the literature, according to which, the inclusion of different departments in the planning and development stages of the PMS helps to obtain employees' support after the tool is implemented (Senyigit, 2009). Moreover, this process helps the organization to transmit the

mission and internalize its culture among employees (Kaplan & Norton, 2004; Tuan, 2012), which according to Grigoroudis, et al. (2012) is the most critical issue for the successful implementation of the tool.

Indeed, involving collaborators proved to be an excellent strategy, providing a wider range of points of view from people who are daily committed with the discussed issues. It also provided the organization with an organized reflection on its mission, vision, values and strategy, something that should be frequent, but that most organizations do not do. In particular, even before starting the Strategy Map designing process, one important step was to define, with the collaborators, how AMPA was responsible for helping SBIBAE to achieve its mission, since the ambulatory does not have a formally stated one. Even though AMPA develops activities aiming at fulfilling the three key topics present in SBIBAE's mission (Healthcare, social responsibility and knowledge generation), after reflecting a bit about the performed activities, it became obvious that AMPA has as its main mission being socially responsible, rather than being a top performer in Healthcare sector or in knowledge generation. Actually, these two last activities are the way AMPA found to become socially responsible, that is, they are means rather than objectives.

Concerning the Strategy Map design itself, the concepts discussed by Kaplan (2001), Gurd and Gao (2007), Greiling (2010) and Grigoroudis, et al. (2012) were used to adapt the traditional tool to the non-profit and Healthcare context, in which financial dimensions lose importance when compared to other perspectives, such as customers or the "innovative" collaborators perspective.

The final version of the Strategy Map designed for AMPA consists of five perspectives, namely customers, processes, collaborators, investments, and financial, and a total of 11 critical success factors distributed among them. The perspectives and critical success factors are described in the following sections.

5.1.2. Customer perspective

Defined as the top perspective, satisfying the customer was considered the most important factor to successfully achieve the ambulatory mission of being socially responsible. This fact comes with no surprise, given that the studied ambulatory is the beneficent branch of a Non-

Profit Healthcare Organization, and goes along with the literature about BSC implementation in Healthcare institutions (Aidemark, 2001; Zelman, et al., 2003; Gurd & Gao, 2007).

Once defined as a top perspective, it was important to understand what customers expect from this service. This topic was implicitly discussed in Questionnaires 1 and 2, particularly with the answers of Community Action Agents 1 and 2, which are members from the community of Paraisópolis hired by the ambulatory to establish a closer contact between the organization and the customers.

After an analysis of the answers in Questionnaires 1 and 2, and discussions with the Medical Coordinator, we defined two critical success factors to satisfy the customer needs. The first one is to provide the community with “good quality of care”. This simple label, however, carries many different meanings behind its name. Offering quality of care means not only providing modern and effective treatment, but also safety, variety of specialists, volume in terms of number of patients treated, low waiting times and, in a broader sense, improving the public health system as a whole, through the knowledge sharing with other actors of the system. Another important factor brought to light by the Community Action Agents was the respect from collaborators towards the patients, especially considering that this is a relation between a well-educated and professional team and an extremely needy community. Not by coincidence, this attitude was remembered as one of the core values within the team by both Community Action Agents, and was initially included as one of the critical success factors in the Strategy Map, to be later included as part of “good quality of care” in order to simplify the map.

The second critical success factor in the customer perspective is “education/prevention”, an activity which is often suppressed by the urgent character of medical treatments, but if well-performed, is able to avoid a series of health issues faced by the community at a low cost. This facet, which once has been a flagship for the ambulatory, is currently underutilized, and the Strategy Map was able to remind the organization of the importance of these initiatives, highlighting them as one of the top critical success factors to fulfil the mission. By educating the community, the ambulatory is able to spread important messages that go beyond a single patient, reaching families, neighbourhoods and, eventually, society as a whole.

5.1.3. Processes perspective

It is impossible to satisfy customers in the long run without the support of well-designed processes. This is the reason why the processes perspective comes right after the customers perspective. As in every organization, no matter the sector in which it actuates, good processes are able to increase efficiency, reducing unitary costs and consequently increasing the offer of products or services. Besides, well-designed processes are able to provide better quality outcomes, guarantee the safety of both collaborators and customers and, at the bottom line, to increase effectiveness, pleasing all stakeholders.

In order to define what are the critical success factors for the processes in AMPA, it was important to identify in which activities the ambulatory should excel to generate good care and education for its customers, and, once again, two critical success factors were identified. The first one, “well-designed, safe, efficient and effective processes. Infrastructure, technology and materials” highlights the importance of having the already mentioned well-designed business processes in its broadest definition. Safety, efficiency and effectiveness are all factors of extreme importance for both the organization and its customers, and were emphasized even though we understand they are already comprised in the definition of well-designed. The inclusion of infrastructure, technology and materials highlights the importance of having good quality support when performing the activities, that is, well-designed processes are nothing if they are not followed by the appropriate infrastructure, supportive technology and availability of material to perform the activities.

The other essential process for AMPA to fulfil its mission is knowledge management, which comprises both knowledge generation and knowledge sharing. Even though knowledge generation may not be the main focus for the ambulatory, as a Healthcare institution it is always important to be attentive for opportunity to develop new studies in the field, improving the quality of services, raising awareness of the initiatives, and, eventually, collaborating with Science and the society as a whole. As important as generating knowledge, sharing the already existing knowledge is an activity currently performed by the ambulatory, which constantly employs interns and resident students, aside from providing courses to members of the public health system and the population in general. Therefore, it is a fundamental part of the organizational strategy and a critic factor to fulfil the mission.

5.1.4. Collaborators perspective

No process can be well-performed without the participation of the adequate people. In this sense, a collaborators perspective was included in the Strategy Map, answering the criticism by Neely and Adams (2000), according to which the BSC does not consider important stakeholders, such as employees. As a Non-Profit Healthcare Organization, the ambulatory faces two challenges at the same time: controlling and motivating employees in a typically professional organization (Aidemark, 2001; Funck, 2007), in which many collaborators often accept below-market salaries (Kaplan, 2001). To solve this issue, we adopted this perspective, which is frequently mentioned in the literature of PMS for Non-Profit and Healthcare Organizations (Gurd & Gao, 2007; Greiling, 2010; Grigoroudis, et al., 2012).

Once collaborators were identified as a crucial issue for the organization, it was time to understand who exactly they should be and how they should behave to deliver the best possible service to customers. To answer the first question, it is important to remind that the studied institution is a typical example of a professional organization. Moreover, their services are dealing with the most valuable assets of a human being, that are health and life. Thus, more than in any other kind of organization, it is vital for AMPA to have “skilled and updated people”, with good academic background, technical abilities and that keep in constant proximity with the changes in the the field of Medicine, to bring new solutions and always improve the service provided to customers. With the same level of importance, collaborators must feel motivated and be committed to their cause, to break the constantly mentioned barriers that separate the professionals from the community and effectively educate their patients and perform their treatments. For this reason, “motivated and committed people, sensitive to the community needs” was the other critical success factor selected for the collaborators perspective.

5.1.5. Investments perspective

To have good processes and the appropriate people, an organization has to constantly invest and improve. This perspective, which normally receives the name of “learning and growth” and is considered by some authors as “the weakest link of the BSC” (Gurd & Gao, 2007) was reshaped for this case, received a new name (“investments”) and proved itself an important piece for the strategy implementation in the ambulatory.

The choice for the name “investments” derives from the fact that not all kinds of initiatives aiming at future improvement could be classified as learning or growth. In particular, “marketing/promotion”, one of the critical success factors identified, could not be labelled as any of them, but was rather seen as some form of investment for the future. For this reason, we suggested the change in the perspective name for “investments” and checked one by one the critical success factors to conclude whether they could be labelled as “investments” or no. The conclusion was that this name was more appropriate for the perspective, since all factors considered represent some form of investment, in the sense that the organization has to temporarily sacrifice some of its resources (cash, time, work force etc.) aiming at larger benefits in the future.

Three critical success factors were identified in this perspective. The first one, as already mentioned, was “marketing/promotion”. A recurrent comment among participants of the first questionnaire, the lack of awareness about what is going on inside the ambulatory demotivates the workers and does not help AMPA to effectively use all of its potential. Thus, investing on marketing both for internal stakeholders (like the collaborators of SBIBAE) and external stakeholders (like the community of Paraisópolis and society as a whole) could increase the recognition of the service that AMPA provides the community with, leading to higher motivation of the team and possibly attracting more investments to the initiative.

The two other critical success factors identified were the investment on “assets” and on “collaborators’ training”. The first one is seen as essential in the sense that it allows the organization to better perform its processes and to motivate its people, providing them with a more comfortable work environment and good technology to treat the patients. The second one, “collaborators’ training”, has all kinds of effects on collaborators and processes. First of all, it obviously improve the team’s skills and updating. Second, it represents a growth opportunity for collaborators as individuals, which motivates them. Third, trained people are ready to perform processes in a safer and more efficient way, and fourth, trained people are more prepared to generate and share knowledge. For all of these reasons, training collaborators was one of the most cited items in Questionnaire 1, and is considered as a vital form of investment for AMPA.

5.1.6. Financial perspective

Normally the top perspective in for-profit organizations, the financial perspective was degraded for the bottom part of the Strategy Map, which does not mean that it has lower importance, but that it is part of the strategy, rather than its final objective. According to Kaplan (2001), the financial perspective actually represents a constraint for NPOs, which means that these institutions have basically to take care of their finance for them to enable the implementation of the strategy and the fulfilment of the mission.

This change of focus from the financial perspective to other perspectives could be observed in Questionnaires 1 and 2, in which few participants remembered to mention issues related to this topic in the questions. Even when specifically asked about indicators for this area, very few suggestions were given, proving that collaborators feel distant from this issue.

Nevertheless, it is essential to keep in mind that an NPO that does not take care of its finances will not have resources to invest and improve, which will lead to a failure in the achievement of the mission. For this reason, two critical success factors were identified in the financial perspective, namely “budget increase” and “costs”.

The first one substitutes the usual concern about revenues in for-profit companies. Since the ambulatory does not have any kind of revenues from the services provided, it must be attentive to its only source of money, that is SBIBAE. The budget represents, then, the availability of resources to be invested on the ambulatory activities. Conversely, the costs represent the destination of that money, and must be controlled to guarantee that they will not overcome the budget and that actually there is a surplus to be invested on the ambulatory improvement.

5.2. The Balanced Scorecard for AMPA

With the Strategy Map designed and the definition of the five perspectives and 11 critical success factors, it became possible to select the set of indicators to compose the BSC for AMPA, which was presented in section 4.4.7. This section aims at analyzing and discussing the designing process of the BSC, the challenges faced to adapt it to the non-profit and Healthcare realities, its final version, and some implementation issues.

5.2.1. Considerations on the Balanced Scorecard designing process

Similarly to what happened during the designing process of the Strategy Map, the process for the BSC also involved the ambulatory collaborators, but this time in a smaller amount, to reduce the load of information and increase the average quality of answers. The first questionnaire to tackle this issue (Questionnaire 2) was answered by ten participants from different areas in the ambulatory, while Questionnaire 3 was answered by only six people, selected according to their proximity with the managerial level. Questionnaire 4, in turn, was directed specifically to Physicians, in order to solve very punctual issues. In this stage, six doctors answered the questionnaire, aside from the Medical Coordinator and the Analyst of Managerial Information 1. The whole designing process, including all the iterations, took approximately 45 days.

The decision of involving collaborators in the designing processes was based on the same reasons already discussed in section 5.1.1. Additionally, it is worth reminding that the ambulatory is characterized as a professional organization, in which employees (doctors) are better informed than customers (patients), and are sometimes the only ones who have the knowledge to set suitable measures and targets for the PMS (Funk, 2007), which reinforces the theory that the BSC should be designed using a bottom-up approach.

Among all the challenges faced during the designing process, some of them deserved a special focus, and are discussed in the following:

- **Time constraints:** The first challenge was the shortage of time to develop a tool like the BSC, which takes normally two years to be implemented in Healthcare institutions (Greiling, 2010). Due to time constraints, this period had to be shortened for approximately six months, considering the discussion of the strategy, elaboration of the Strategy Map, choice for the set of indicators, elaboration of the BSC, and implementation choices.

Overcoming this issue took a great effort and a continuous contact with the Medical Coordinator and other collaborators, which was possible thanks to the easiness of communication that some internet tools provide modern society with. It must be noticed, however, that the tool still has to be implemented, tested and reviewed, tasks of which AMPA's management is in charge.

- **Adapting the Balanced Scorecard for a Non-Profit Organization:** The process of adapting a tool which is traditionally used by the for-profit sector to an NPO was another major challenge to be faced by this project, as discussed by Grigoroudis, et al. (2012), which state that the tool is too general and difficult to adapt to specific organizational cultures. The BSC, however, showed itself as a flexible framework, allowing a reconfiguration through the change of its perspectives and their relative position. Even important stakeholders, such as employees, which are not considered in the original version of the BSC (Neely & Adams, 2000), were included in the adapted version, receiving special attention. With the support of the Strategy Map, it was possible to define a set of indicators that has as final aim fulfilling the overarching mission of the organization, that is, being socially responsible, rather than creating value for shareholders, as it is normally used for.
- **Adapting the Balanced Scorecard for a Healthcare organization:** Not only is AMPA inserted in the NPO context, but it is also from a very particular sector, in which professionals tend to demand more freedom and, subsequently, less control over their activities. Developing a PMS framework for a Healthcare organization was another challenge faced by the project. In order to overcome it, it was essential to constantly work in cooperation with AMPA's employees, in a bottom-up approach, always making sure that they were in agreement with every design choice, following the recommendations of the study by Funck (2007). In this way, employees felt motivated for being part of a process that can lead to improved results. Besides, they had the opportunity to disclose anonymously their opinions about issues that interfere in their day-by-day.

Still concerning the Healthcare particularities, the collaborators' participation was once again very important, since it is a very specific field and, therefore, many of the indicators had to be created by someone who is closer to this reality. It was interesting to observe how each specialist tended to care more about its own field, which is natural, and the final version of the BSC clearly exposes the influence of such professionals, with indicators related to different pathologies, pharmacy, and nursing activities, among others.

- **Difficulties to obtain past numbers:** Another important thing to note, collecting past information about the selected KPIs was a difficult task. Since the ambulatory did not have any formal PMS before, there were just a few indicators available. Once the new indicators were defined, however, we believe monitoring them will be a reasonably easy task, because there are two professionals fully dedicated to managerial information analysis and AMPA has the necessary IT systems to collect and treat the needed information. It is important, though, to monitor the initial phase of the BSC implementation to assure that no further investment is necessary to apply the tool.
- **Managerial commitment:** In their work, Bourne, et al. (2000) identify the lack of managerial commitment as one of the big causes for failure in the implementation of BSCs. During the development of this work, it became extremely clear the importance of having full managerial support when designing such tools. First, because there is no employee that understands as much about the processes inside an organization as its manager. Second, because the manager is the one who has the power to motivate and make other collaborators participate in the designing process. Luckily, during the development process of this work I could have a close contact with the Medical Coordinator, which facilitated the designing process and made it possible to develop a complex tool in a short time, even with the distance constraints.

Many issues regarding the final version of the BSC were already discussed in sections 4.4.7 (detailed description of the KPIs) and 5.1 (discussion on the choice of perspective and critical success factors). One last topic to be discussed concerns the relation among the indicators selected for the BSC and the indicators present in the Healthcare management literature.

As presented in section 4.4.7, 16 out of the 20 indicators selected for the BSC were already mentioned in the literature with the same or very similar definitions. This is quite interesting, considering that the set of indicators was initially suggested by collaborators which, in general, have no managerial background. This shows that AMPA does not escape from the characteristics of other Healthcare organizations previously studied by the literature, and that the issues that concern the ambulatory are not different from the ones other institutions deal with. Consequently, solutions found by other similar organizations to solve their problems can be also applied to AMPA, confirming what Euske (2003) stated in his work.

Regarding the four other indicators, they are more specific to AMPA's reality, and are briefly discussed in the following:

- **Adherence to pharmacological treatments:** This indicator suggested by the Pharmacist deals with a curious fact that happens in the ambulatory. Many patients do not take the prescribed medications even when they are provided for free. This interesting fact was discussed with the Medical Coordinator, according to which (translated by the author):

“There are a lot of reasons why patients do not take the prescribed medication. Some of them are in a hurry and do not get the medicine in the pharmacy when they leave the ambulatory. Others are afraid of determined forms of medication, while some simply do not trust them. Besides, many of them consider themselves cured, and thus conclude they do not need medications anymore.”

Still according to the Medical Coordinator, this behaviour is not exclusive to low-income and poorly educated communities, but is frequent among all kinds of patients.

- **Patients' absenteeism in scheduled returns:** The absenteeism among patients used to be a great problem for the ambulatory, which has been taking measures to decrease this number. One of the reasons why the organizations faces this situation may be the low level of education in the community where they actuate. Besides, the fact that the consultations are free may not create a strong commitment among patients. Thus, this indicator is very important to control and try to improve this condition.
- **Average number of hours of training per student:** The knowledge sharing orientation of the ambulatory is an important characteristic of AMPA, and thus must be constantly controlled. To guarantee an education of excellence to its students, it is important to make sure that they are receiving the adequate charge of trainings, rather than randomly increasing the number of students disregarding the quality of education provided.
- **Number of publications referring to AMPA in internal or external medias:** Maybe the most “surprising” indicator in the list, due to its weak connection to medical or managerial routines, the disclosure of the ambulatory's activities was mentioned by many collaborators as a source of motivation to the team, and thus was included as a critical factor for the organization.

5.2.2. Implementation issues

With the Strategy Map designed and the set of KPIs selected for the BSC, there are still some implementation issues that must be discussed. In their work, Agostino and Arnaboldi (2012) identify four design dimensions for the BSC: definition of the KPIs, cascading, target setting and reward system. The KPIs were already defined and discussed in the previous section, but the other dimensions are discussed below:

- **Cascading:** This is a process in which the BSC is unfolded in other scorecards for the lower levels in the organization, trading managerial indicators for more operational ones. Since the ambulatory is a very small organization and does not present many hierarchical levels, we believe there is no such need. Thus, the developed BSC is valid for all employees in the ambulatory. Other specific indicators, however, can be used to measure particular activities in different areas of AMPA. It is important to keep in mind that the BSC does not include all the important indicators for an organization, but collects the ones that are meaningful for the managerial level.
- **Target setting:** A very important step after the selection of KPIs for the BSC is the definition of targets for each of them. This activity is out of the scope of this work, but the Medical Coordinator was oriented to perform it, preferentially aided by the team, as suggested by Kaplan and Norton (1996). The idea of involving collaborators in the goal setting is particularly important in this case, since we are dealing with a professional organization. When defining the targets, it is essential to keep in mind that they must be at the same time challenging, in order to motivate the team, but realistic (Najmi, et al., 2012).
- **Reward system:** The linkage between performance and reward systems is very discussed in the literature and there is no consensus about the issue. When asked if they would like to be rewarded according to the performance in the BSC, AMPA's collaborators were unanimous in saying no, disregarding this possibility for the ambulatory. This result actually goes along with most of the implementation of BSC cases in the Healthcare sector (Tuan, 2012) and in NPOs (Greiling, 2010).

Another important implementation issue refers to how results will be presented to the management and to collaborators in general, and how the tool will alert for bad results. In his

work, Tuan (2012) suggests organizations to publish their results in their intranet, so that all collaborators have continuous access to this information. To simplify this process, though, AMPA bought a new panel to expose the indicators in the BSC to collaborators, reminding them of targets and presenting current results. Besides, a system based on colour codes (blue, green, yellow and red) is currently used by the organization to inform employees if goals are being achieved or to alert for failures, which goes along with the studies of Chen, et al. (2012).

In order to keep the BSC always updated and to adapt it to new realities or changes in the strategy, we suggest the ambulatory to adopt the approach proposed by Kennerley and Neely (2003), in which the tool is periodically reviewed in a process that consists of three steps: reflection on the current BSC, its modification to realign it to the new environment and strategy, and deployment of the updated BSC. This approach, in which the strategy and the PMS are constantly discussed and reviewed, without the need of an exceptional event, recalls Argyris' concept of double-loop learning, and classifies the BSC as an Interactive BSC, according to the definition of Agostino and Arnaboldi (2012). This option assumes active participation of managers and face to face dialogue with subordinates, leading to a more organic environment.

Recapturing the CLMS framework proposed by Kaplan and Norton (2008), we can now analyze the five stages comprised in the model. The cycle started with a review of the organizational strategy, which was performed by Questionnaire 1, resulting in the definition of AMPA's specific mission. The second stage was the main topic of this work, comprising the use of tools like the Strategy Map and the BSC to translate and communicate the strategy among collaborators. Step three consists of the definition of operations to deploy the chosen strategy, and is an activity to be performed by the ambulatory's management. Steps four and five, although not yet performed, were already discussed and defined in this work, consisting of the effective measure of the selected indicators and the model updating, which closes the cycle, linking its end to a new beginning, when the organizational strategy is reviewed.

6. Conclusion

There are many factors that influence the success of an organization. Some of them are far beyond the control of managers, and there is little to do order to deal with them. A good manager, however, is able to identify which are the variables that can be manipulated, and how to pull the strings to correctly combine them and achieve the best possible results. No manager, though, can perform these activities without the aid of robust tools and a motivated team.

Designing a PMS for an organization is a great challenge. Adapting a consecrated framework among the traditional for-profit industry to an NPO in the Healthcare sector was even more challenging. Nevertheless, as for every challenge, its completion can generate good reflections and lead to great conclusions. After the design of the BSC for AMPA, some of them have arisen:

- **Developing a PMS may work as a reflection:** Developing a PMS, no matter the framework selected, is a process that generates much more than a simple table or chart at its completion. It generates reflection, and reflections can bring new ideas and solutions. During my talks with the Medical Coordinator, we often discussed mundane suggestions, issues that are common in the ambulatory routine, but that nobody thought of solving before. Most of this ideas came from a “wrong” answer in the questionnaires, or from a “incorrectly-designed” Cognitive Map. None of them, however, would have arisen without a moment of reflection, and this may be the greatest outcome of a PMS development process.
- **Involving collaborators can break barriers:** Involving collaborators can work as a powerful way to motivate the team. During the BSC designing process, more than 20 collaborators had the opportunity to participate, give their opinions, talk about their virtues and express their dissatisfactions. Breaking the barriers between managers and employees tend to generate a better work environment, where people have the right to express themselves and solve their problems in a faster, more direct way. Besides, good ideas can rise, especially when everyone has the freedom to propose ideas without the fear of being reproved. In particular, I would like to highlight the participation of the two Community Action Agents, which are members of Paraisópolis community and work for the ambulatory in order to break also the barriers between

professionals and patients. These actors were specially considered, because their opinion is, somehow, representing the whole community.

- **Managers have good tools at their disposal:** As said before, no manager can manage properly without the aid of good managerial tools. During this project, we could experience two of them, the Strategy Map and the Balanced Scorecard, and we could realize that managers have good options at their disposal. Even though the BSC was not implemented in AMPA yet, it showed itself as a very flexible tool, capable of adapting to a significantly different reality from the one it was actually created for. Therefore, we believe that, if well implemented, correctly used, and periodically updated, the BSC can bring many improvements for the ambulatory. It is also worth to mention that the Strategy Map was a vital step in the BSC designing, without which we are sure that the obtained results would not be possible.
- **Non-Profit Organizations are not so different from for-profit ones:** NPOs are actually quite different from for-profits, but what they have to do in order to successfully achieve their missions is very similar. Apart from financial issues, all organizations have to satisfy their customers, have good internal processes, and learn to continuously grow. Thus, the difference is merely if all of this will be used to generate profit in the end, or if all of this will be possible through the good management of financial resources.

This project finishes with two clear outcomes: a Strategy Map and a Balanced Scorecard specifically designed for AMPA. The topic, however, is far from being exhausted, and we leave some open doors for future developments of this work:

- **Implementation process:** Research can be done on how the BSC was effectively implemented in AMPA, its usability, and how monitoring the ambulatory's performance influenced the day-by-day in the organization.
- **Effectiveness of the developed tool:** Although the BSC was delivered as a final product to the ambulatory, it is impossible to affirm whether it will be or not successful, and if it will effectively help the management to perform its activities. The results obtained by the usage of the tool are, thus, one more topic to be studied.
- **Updating process:** Although we discussed some issues related to the updating process, this is an important issue, which could be further analyzed and discussed.

- **Adapting the tool to other similar Healthcare centres:** Research can be done in order to evaluate the applicability of the developed tool to other similar Healthcare centres.

To conclude, managing organizations is not an easy task. It has never been and probably never will be. But through the use of good managerial practices, appropriate tools, a good dose of reflection, and the support of motivated and committed people, the chances of successfully managing an organization can increase considerably.

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8. Appendix

Appendix 1 – Questionnaire 1

DESIGNING A BALANCED SCORECARD FOR THE AMBULATORY OF PARAISÓPOLIS

QUESTIONNAIRE 1

Hi, my name is Gabriel Eisenkraft, I am a student of the last year of Management Engineering in Politecnico di Milano (Italy) and the objective of my graduation project is to design a **Balanced Scorecard** for the **Ambulatory of Paraisópolis (AMPA)** with the support of its collaborators.

The Balanced Scorecard is a tool widely used by organizations to help them to achieve their objectives. It is responsible for translating the organizational strategy into simple measures that stimulate employees to work aligned to the settled objectives and targets. Quite well-known among managers and successfully diffused throughout the industry, the Balanced Scorecard is still rarely used in the Healthcare sector, even though there are studies showing great results when the tool is applied in this environment.

The objective of this first questionnaire is to better understand AMPA and its collaborators, identifying how they see the organization and raising some initial ideas for the future design of the Balanced Scorecard. It is a short questionnaire, but essential for the project development. Please **reflect** deeply before answering the questions and do not limit yourself the first **ideas** that come to your mind (although they are also extremely important).

Each of the interviewees is fundamental for the Balanced Scorecard designing process. There are no right or wrong answers, you can answer the questionnaire anonymously and it has absolutely no intention to evaluate you.

Since now, I thank you for your collaboration.

1. **Briefly describe your job in AMPA and your main duties and tasks.**
2. **For how long have you been working for AMPA?**
3. **Are you aware of the Mission, Vision and Core Values defined by SBIBAE? If yes, please write them down. If no, what do you think they should be?**
4. **How do you think that AMPA helps to fulfil this Mission?**
5. **What else do you think that AMPA could do to help in the fulfilment of the Mission?**

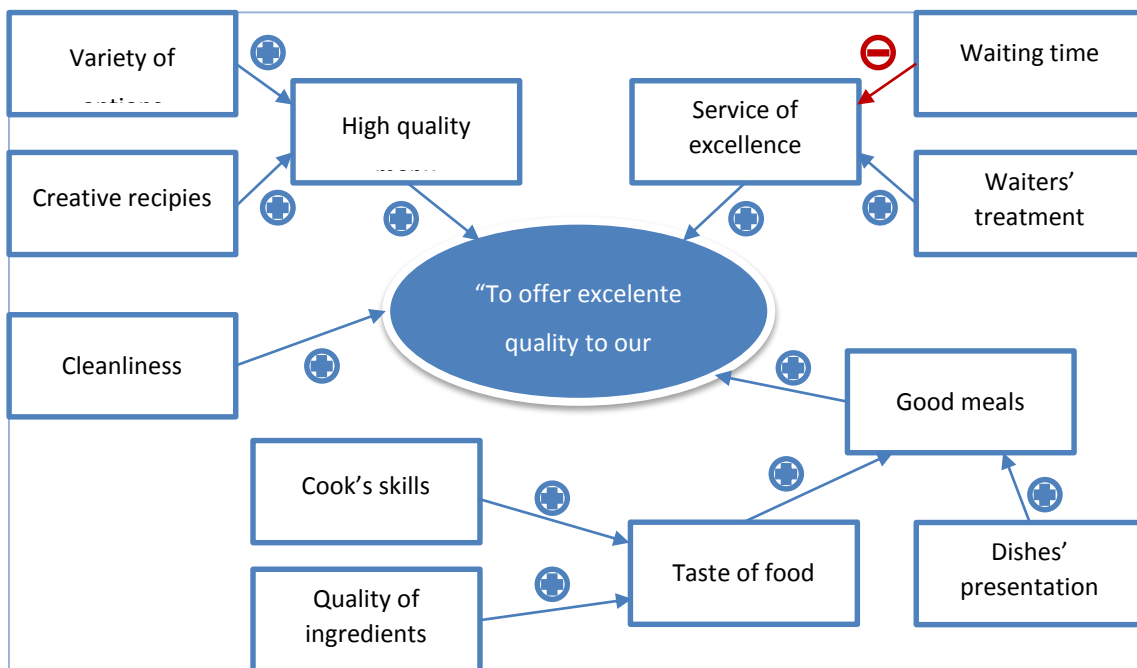
6. In your opinion, what are the main qualities/competences/knowledge/values that allow AMPA to play its role and to stand out?
7. In your opinion, which are the main challenges faced by AMPA when performing its tasks?

A variety of tools can be used to support the design of a Balanced Scorecard. The map showed below is one of them, and it helps people to understand how different factors interact positively or negatively when trying to achieve the final objective of an organization. Briefly, it connects ideas based on a **cause and effect relation** among them. The signs on the arrows indicate whether an element has a positive (+) or negative (-) effect over another. Look at the example below:

Organization: Restaurant

Mission: "To offer excellent quality to our customers."

Cognitive Map:



8. Now consider AMPA and draw a Cognitive Map like the one in the example, indicating which are the factors that help (or disturb) the ambulatory to achieve its Mission. Try to create between 8 and 12 connections (arrows).

Appendix 2 – Questionnaire 2

DESIGNING A BALANCED SCORECARD FOR THE AMBULATORY OF PARAISÓPOLIS

QUESTIONNAIRE 2

Hello. First of all, I would like to thank you for your attention and dedication when answering the first questionnaire. The answers provided by AMPA's collaborators were an incredibly rich source of material for the project development and the design of the Balanced Scorecard for the ambulatory.

After collecting and evaluating the collaborators' opinion, a first draft of a Strategy Map was drawn for AMPA. The Strategy Map (similar to the Cognitive Map drawn in the previous questionnaire) is a tool that connects relevant factors for AMPA through a cause and effect relation, organizing them in different perspectives according to their nature. It is designed in order for the organization to achieve its Mission through a special focus on these particular elements of great importance.

Observe the Strategy Map created for AMPA in the next page. On the top part you can see SBIBAE's Mission, followed by AMPA's Mission (AMPA does not have a formally defined Mission, but I tried to represent the way in which AMPA helps SBIBAE to achieve its Mission). The rectangles in both sides have the names of the five perspectives proposed (customers, processes, collaborators, investments, and financial) and the boxes in the scheme indicate the elements which are essential for AMPA to fulfil its Mission. Finally, the arrows that connect the boxes indicate how these elements interact, that is, how the fulfilment of one consequently influences on the fulfilment of others.

Note that this Strategy Map was designed based on collaborators' answers, trying to gather the ideas proposed in the previous questionnaire. Since this is a first draft, there may be a few mistakes, like connecting two elements in an appropriate way, giving attention to irrelevant factors or even ignoring important elements for AMPA to fulfil its Mission.

After observing the Strategy Map, please answer:

- 1. Do you agree with the Strategy Map proposed? If no, how would you change it so that it could better reflect the reality of AMPA?**

STRATEGY MAP FOR AMPA

SBIBAE'S MISSION (HEALTHCARE, SOCIAL RESPONSIBILITY, KNOWLEDGE GENERATION)

AMPA'S MISSION (SOCIAL RESPONSIBILITY)

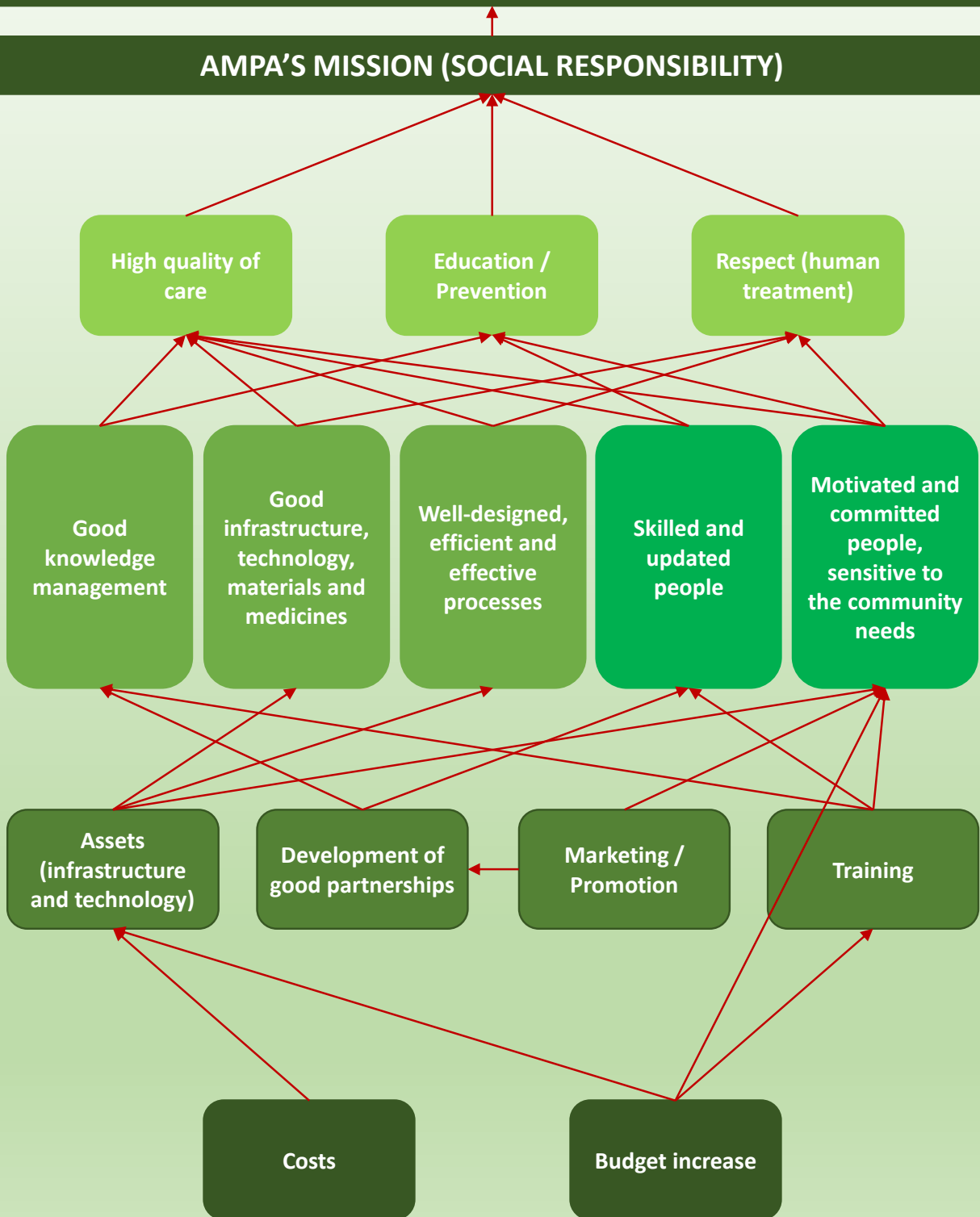
CUSTOMERS

PROCESSES

INVESTMENTS

FINANCIAL

COLLABORATORS



After the Strategy Map development, the next step to design the Balanced Scorecard is the selection of a set of indicators to measure the factors considered critical for the organization. An indicator is a measure that can be numerically expressed and allows the organization to evaluate whether its goals are being or not achieved. Besides, a good indicator must be clearly defined (the way in which it should be measured has to be clear) and easy to measure (the organization must be able to measure it).

For instance: a restaurant that identifies customer satisfaction as an important factor can measure it through customer satisfaction surveys, in which clients are asked to rate the service from 0 to 10 according to determined attributes. The average ticket (other factor considered as critical by the restaurant) can be measured as the result of the division between total revenues and total number of orders.

2. The list below includes all the elements considered important in the Strategy Map proposed for AMPA (in case you have changed the map, include/exclude the changed elements). Please suggest two indicators to control each of the elements. If the indicator's name is not self-explanatory, define clearly the way in which it should be measured.

- **High quality of care**
- **Education/Prevention**
- **Respect (human treatment)**
- **Good knowledge management**
- **Good infrastructure, technology, materials and medicines**
- **Well-designed, efficient and effective processes**
- **Skilled and updated people**
- **Motivated and committed people, sensitive to the community needs**
- **Assets (infrastructure and technology)**
- **Development of good partnerships**
- **Marketing/Promotion**
- **Training**
- **Costs**
- **Budget increase**

Appendix 3 – Questionnaire 3

DESIGNING A BALANCED SCORECARD FOR THE AMBULATORY OF PARAISÓPOLIS

QUESTIONNAIRE 3

Hi! Once again, I would like to thank the team's effort when answering the previous questionnaires. The opinions provided by AMPA's collaborators were an enriching source of material for the design of the Balanced Scorecard for the ambulatory.

After the elaboration of the Strategy Map (resulting from the first questionnaire), the answers collected in Questionnaire 2 enabled the development of a first version of the Balanced Scorecard, in which 20 indicators are divided in five perspectives (customers, collaborators, processes, investments, and financial). In the cases when there was available information, numbers referring to 2011 and 2012 were already included⁶. The idea is that the manager that uses the Balanced Scorecard can have these numbers as a reference and is able to visualize the past trends, as a way to establish targets for the coming years.

The first version of the Balanced Scorecard can be seen in the next pages. Note that the tool has been designed based on the suggestions from collaborators, following the strategy defined to achieve the objectives of AMPA. Since this is a first draft, it may contain some mistakes, such as ignoring an important indicator, giving special focus on unimportant measures or even using two indicators to measure the same element.

To answer this questionnaire, please put yourself in the position of the Medical Coordinator of the ambulatory, as someone responsible for managing all the activities developed inside AMPA and for monitoring its relation with SBIBAE, the community of Paraisópolis and the society as a whole. Analyze the Balanced Scorecard in the next pages and answer:

- 1. Considering all the indicators in the Balanced Scorecard, do you miss any relevant information for the managerial level of AMPA?**
- 2. Is there any indicator in the Balanced Scorecard that you consider as irrelevant or unnecessary for the good management of the ambulatory? If yes, which one and why?**
- 3. Considering all the information available in the Balanced Scorecard, do you feel in control of AMPA?**
- 4. Do you think that linking the collaborators' remuneration to the achievement of targets of the Balanced Scorecard might be a good strategy to motivate the team?**

⁶ This information was not included in this questionnaire, but it is available in Appendix 13.

| BSC AMPA | | | |
|---|------|------|------|
| CUSTOMERS | 2011 | 2012 | GOAL |
| Number of new cases | 2011 | 2012 | x |
| Average number of consultations - Asthma | 2011 | 2012 | x |
| Average number of consultations - Allergic Rhinitis | 2011 | 2012 | x |
| Average number of consultations - Obesity | 2011 | 2012 | x |
| Customer satisfaction index - Health | 2011 | 2012 | x |
| Adherence to pharmacological treatments | 2011 | 2012 | x |
| Patients' absenteeism in scheduled returns | 2011 | 2012 | x |
| COLLABORATORS | | | |
| Number of severe and catastrophic events | 2011 | 2012 | x |
| Average score in PEC (Continuous Learning Program) | 2011 | 2012 | x |
| Collaborators' absenteeism index | 2011 | 2012 | x |
| Collaborator satisfaction index | 2011 | 2012 | x |
| Customer satisfaction index - Service | 2011 | 2012 | x |
| PROCESSES | | | |
| Number of adverse events | 2011 | 2012 | x |
| Average time to schedule consultation | 2011 | 2012 | x |
| Number of scientific publications | 2011 | 2012 | x |
| Average number of hours of training per student | 2011 | 2012 | x |
| INVESTMENTS | | | |
| Percentage of budget invested in infrastructure | 2011 | 2012 | x |
| Number of publications referring to AMPA in internal or external medias | 2011 | 2012 | x |
| Number of courses per collaborator per year | 2011 | 2012 | x |
| FINANCIAL | | | |
| Budget increase | 2011 | 2012 | x |
| Average cost per patient treated | 2011 | 2012 | x |
| Cost reduction due to the use of medical protocols | 2011 | 2012 | x |

| DEFINITION | |
|---|--|
| | Number of new cases throughout the year |
| | Average number of consultations needed to control a specific disease |
| | Average rating obtained in customer satisfaction survey about health in the community |
| Adherence in the withdrawal of Salmeterol + Fluticasona in the two available presentations in the program (SeretideR 25/50 and 25/125) and Somatropin (SaizenR) | Percentage of patients' absenteeism in scheduled returns |
| | Number of severe and catastrophic events registered throughout the year |
| | Average score of collaborators in the Continuous Learning Program Collaborators' absenteeism index |
| | Average rating obtained in the organizational climate survey about collaborators' satisfaction |
| | Average rating obtained in customer satisfaction survey about quality of services provided |
| | Number of adverse events registered throughout the year |
| | Average waiting period between scheduling a consultation and its execution Number of collaborators' scientific publications |
| | Average training hours offered to each student (residents, interns, university students) per year Investment on infrastructure/Budget |
| Number of publications referring to AMPA in internal or external medias throughout the year | Number of courses offered by AMPA divided by number of trained collaborators per year Increase os budget year over year |
| | Total costs divided by number of patients treated throughout the year Percentual cost reduction due to the use of medical protocols |

| OBJECTIVE |
|--|
| To control the number of consultations and of people benefited by the program |
| To check the average number of consultations needed to control a specific pathology |
| To check the opinion of customers in relation to the level of health that the ambulatory provides the community with |
| To verify the effectiveness of proposed drug treatments |
| To verify whether the community is compromised with the cause of health |
| To check whether the team is ready and qualified to avoid severe and catastrophic events |
| To check if the collaborators are continuously trained and educated to be always updated and to improve the quality of provided services |
| To check whether collaborators are compromised with the cause |
| To check if collaborators are satisfied with the work environment |
| To check if customers feel respected and enjoy the quality of services provided |
| To check whether processes are being correctly performed |
| To control the average waiting time of patients |
| To check if the ambulatory generates knowledge |
| To control the quality of knowledge shared by the ambulatory |
| To check the proportion of the budget which is invested on infrastructure, technology and materials |
| To verify if AMPA is being advertised both internally and externally |
| To check if the ambulatory provides its collaborators with opportunities to grow and improve |
| To evaluate the availability of resources to be used by the ambulatory |
| To evaluate the efficiency of the ambulatory when treating its patients, whether it is capable of providing care at a low cost |
| To verify if the ambulatory is capable of designing strategies to reduce costs |

Appendix 4 – Questionnaire 4

DESIGNING A BALANCED SCORECARD FOR THE AMBULATORY OF PARAISÓPOLIS

QUESTIONNAIRE 4

Hi! One more time, I would like to thank the collaboration of all employees from AMPA that have participated in the previous questionnaires and allowed us to reach the final stages of the elaboration of a Balanced Scorecard for the ambulatory.

In the last questionnaire, a first version of the Balanced Scorecard with its indicators was presented to some of the collaborators, which made comments and critics that were further discussed to be incorporated to the BSC. However, we could not reach an agreement about some of the topics, which are still open to discussion. Therefore, I would like to learn the opinion of the medical team before producing the final version of the BSC.

This is a short questionnaire to solve very specific questions. Please answer the following expressing your opinion in relation to the topics addressed.

Since now, thank you for your help!

- 1. AMPA currently has some ways to evaluate its collaborators, but some of the participants in previous questionnaires criticized the methods applied, mentioning particularly the subjectivity of the evaluation. In your opinion, how could AMPA develop an efficient and objective method to evaluate the technical competence of its employees and check whether they are constantly updated?**

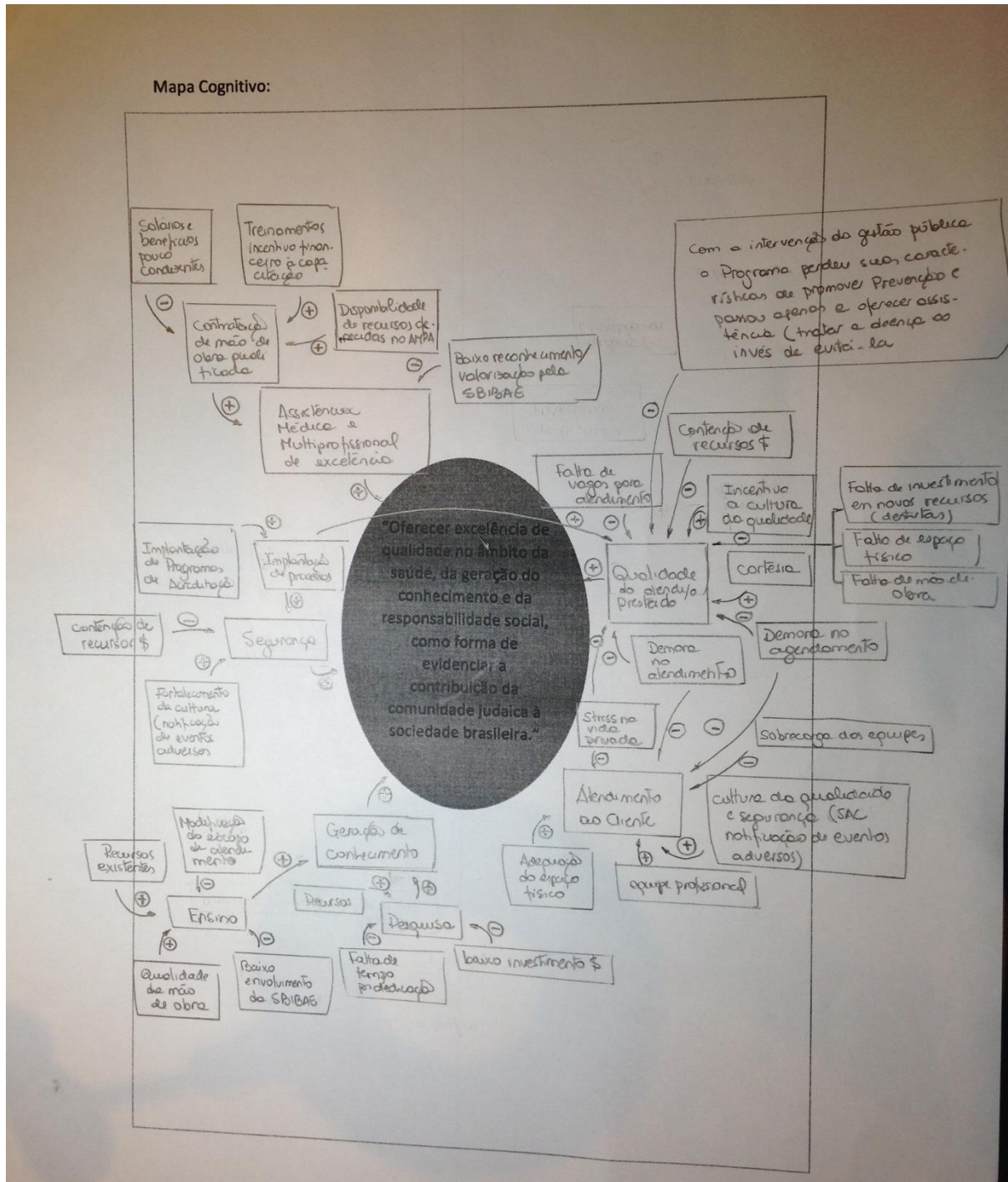
- 2. One of the indicators selected to measure the efficiency and effectiveness of treatments performed by AMPA was “average number of consultations per pathology”. Nevertheless, there was some divergence concerning the choice of the pathologies which should be monitored by the indicator. The list below includes the most prevalent chronic diseases among AMPA’s patients. Please, select the three pathologies you believe that should be monitored and rank them according to their priority (1 for the most important, 3 for the least important). When answering, take the following factors into consideration:**
 - It is important that the pathology is frequent, so that the data has statistic value;
 - Treatments that involve a variety of specialists are better to evaluate the whole team than treatments performed by a single specialist;
 - The fact that the treatment of a specific disease is naturally long does not imply that the medical team is not performing its activities correctly. The final

objective is to “reduce” the average number of consultations to control the disease, rather than trying to “approximate it to zero”.

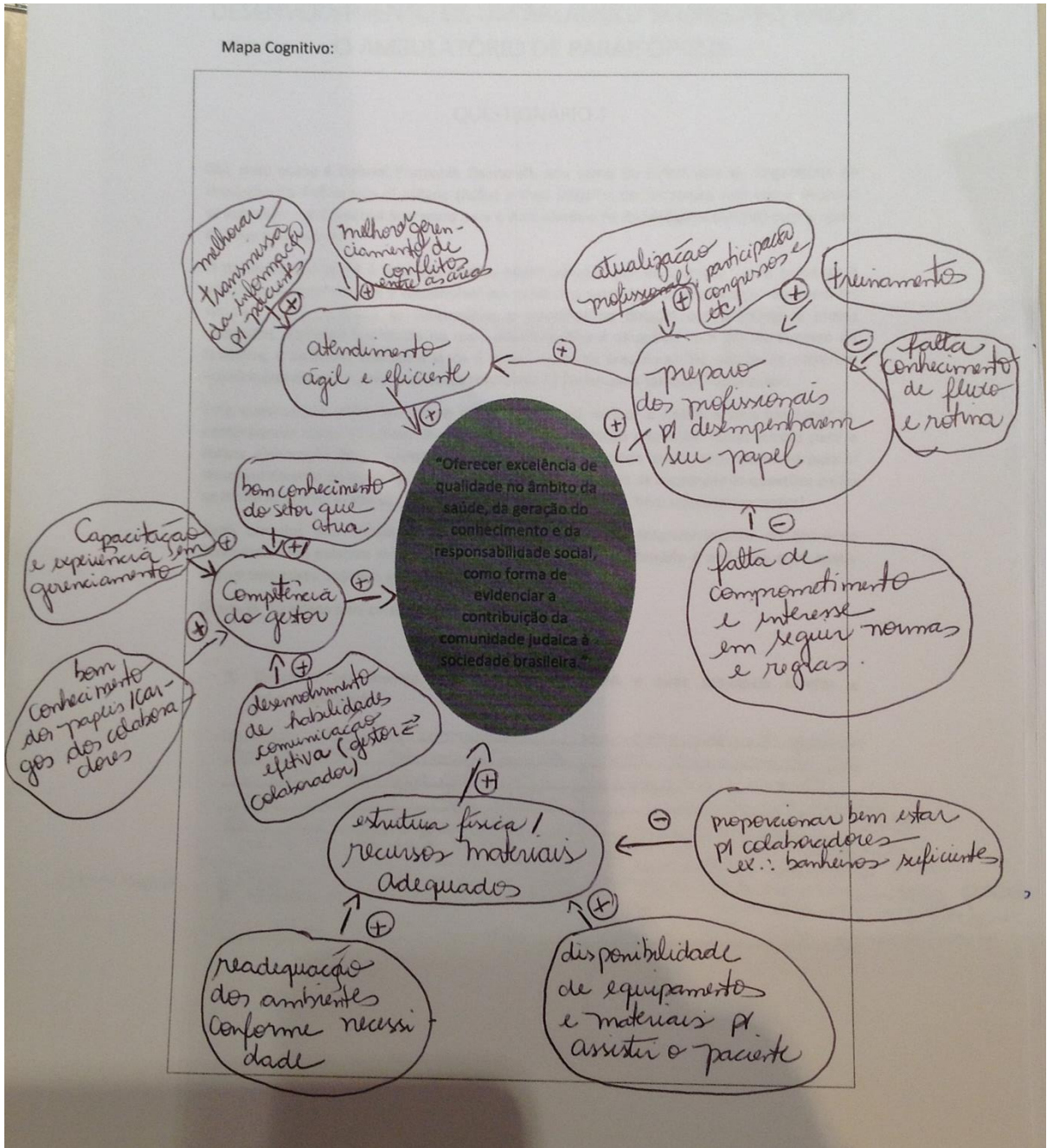
- () Allergic rhinitis
- () Asthma
- () Atopic dermatitis
- () Chronic encephalopathy
- () Convulsive syndrome
- () Developmental disorders
- () Diabetes
- () Disorders of refraction and accommodation
- () Functional bowel disorders
- () Headache/Migraine
- () Obesity
- () Recurrent otitis
- () Recurrent urinary tract infection
- () Reflux disease

Appendix 5 – Cognitive Maps

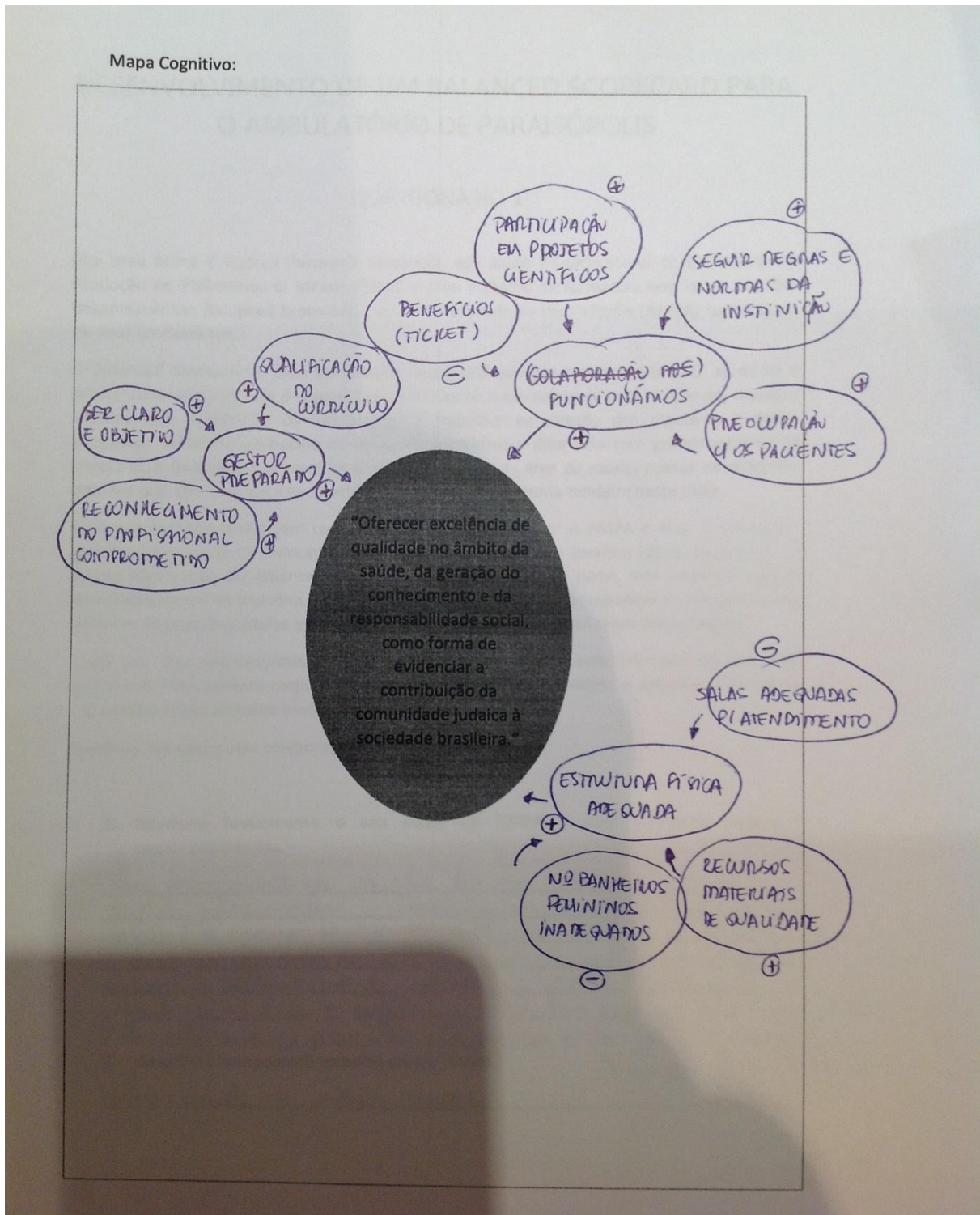
Cognitive Map by the Medical Coordinator



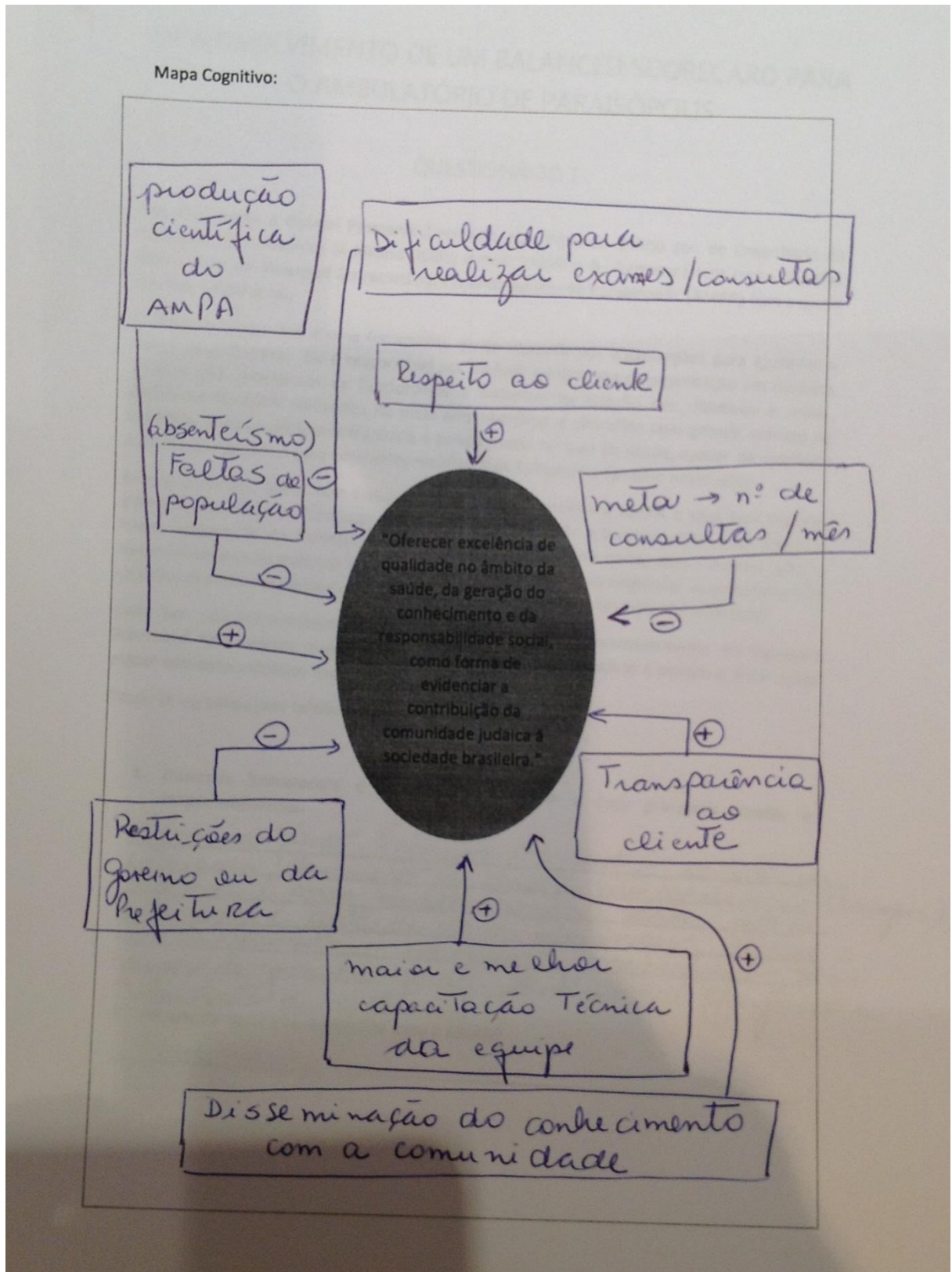
Cognitive Map by Nurse 1



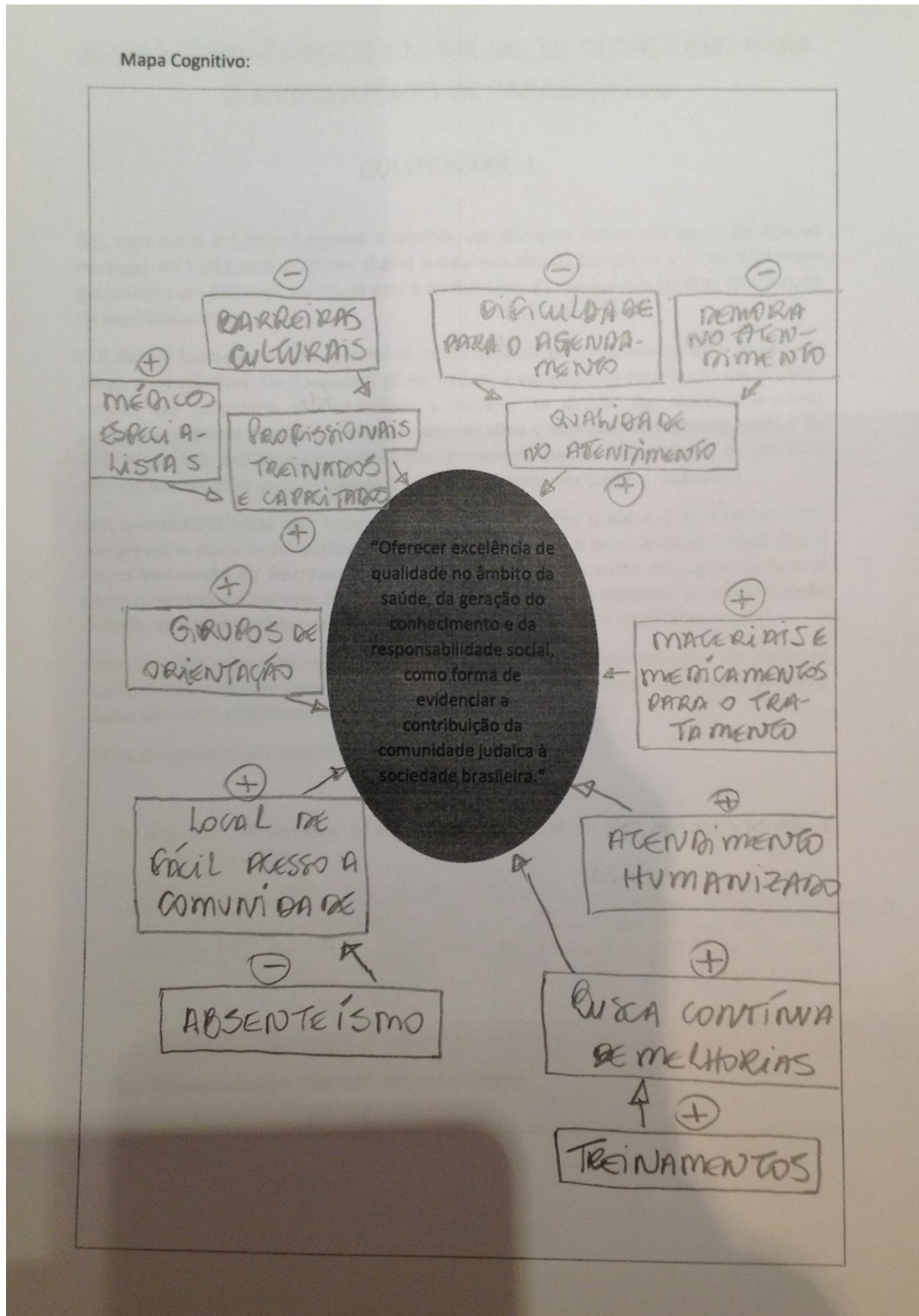
Cognitive Map by Nurse 2



Cognitive Map by Physician 1



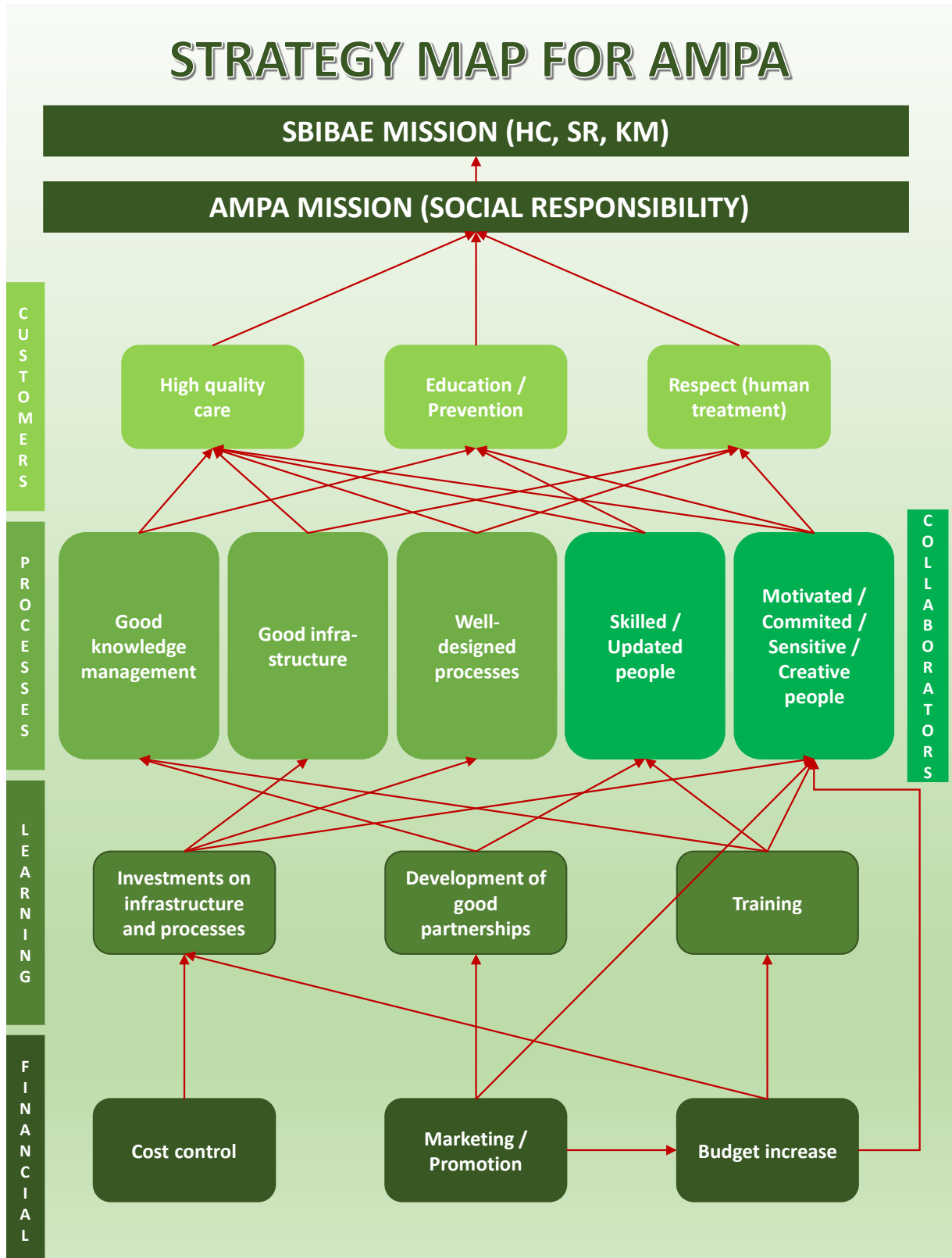
Cognitive Map by Technical Nurse 1



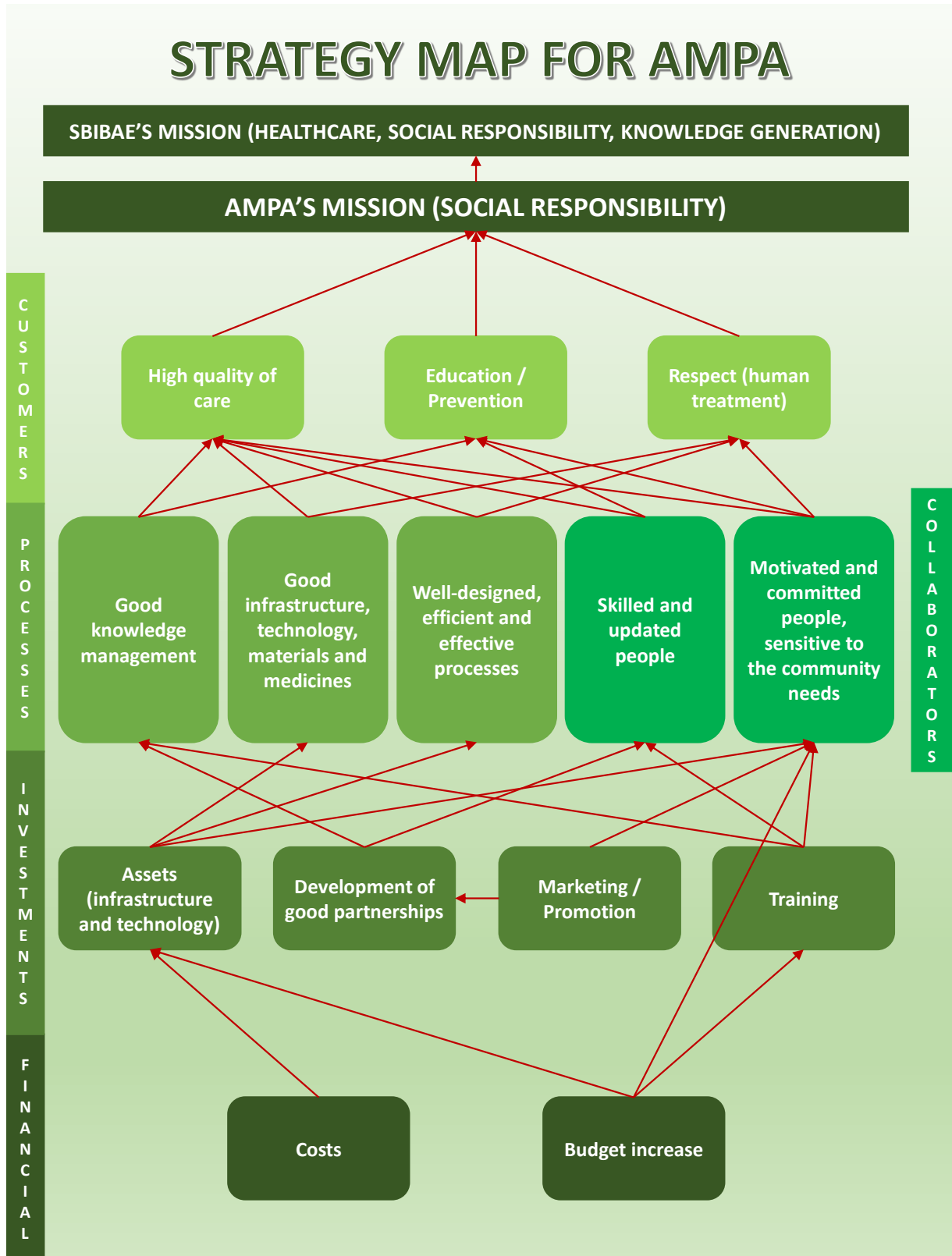
Appendix 6 – Strategy Map draft 1



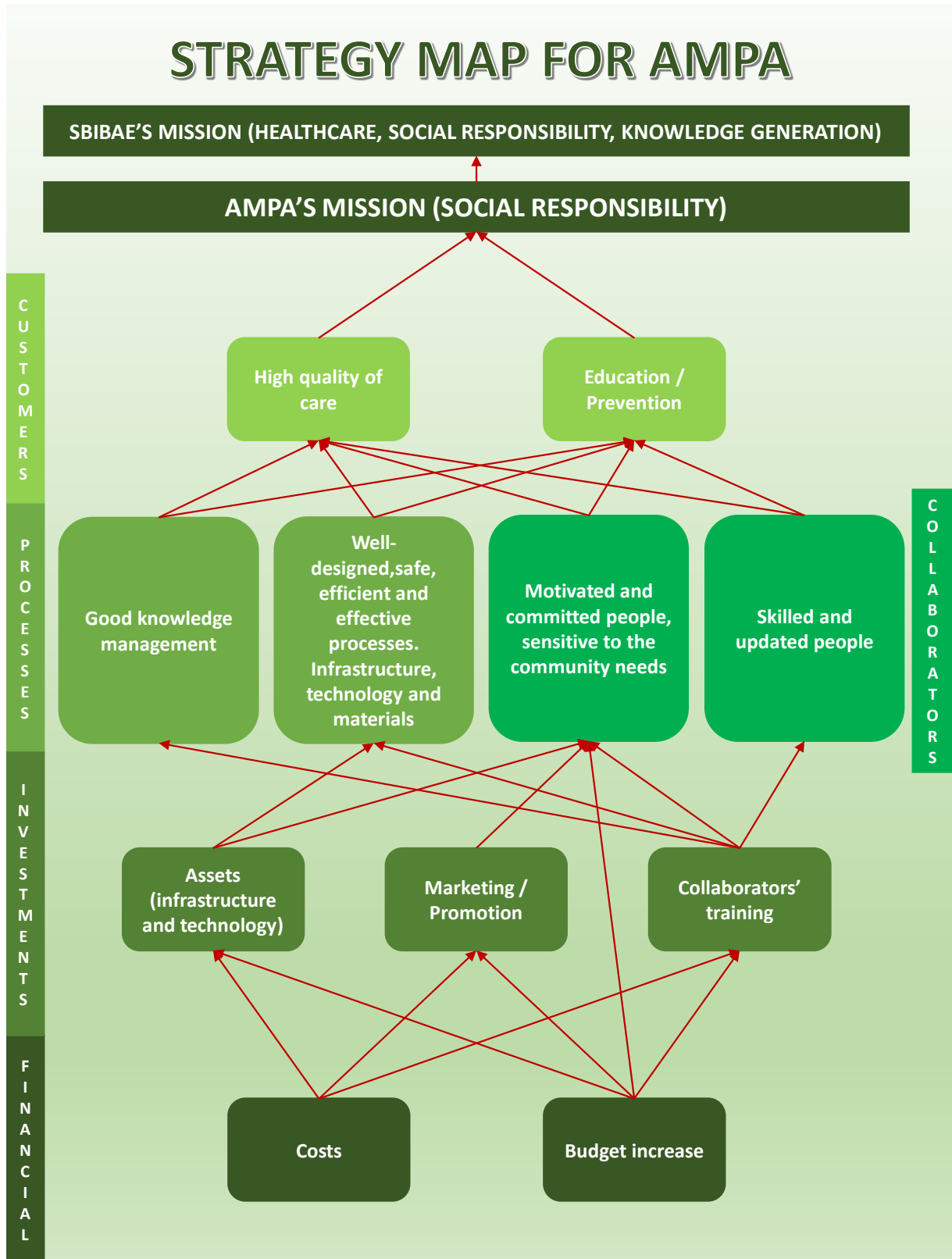
Appendix 7 – Strategy Map draft 2



Appendix 8 – Strategy Map draft 3



Appendix 9 – Strategy Map final version



Appendix 10 – Set of indicators selected by the author

| Perspective | Critical Success Factor | Key Performance Indicators |
|---------------|--|--|
| Customers | High quality of care (5) | Total number of consultations; average time of patient in the system; deaths per hospital stay; customer satisfaction on health index; number of customer complaints |
| | Education/Prevention (2) | Number of programs/projects; patients' absenteeism index |
| Processes | Good knowledge management (2) | Number of scientific publications; number of resident students in the ambulatory |
| | Well-designed, safe, efficient and effective processes. Infrastructure, technology and materials (3) | Number of adverse events; average time to schedule a consultation; operational costs |
| Collaborators | Skilled and updated people (2) | Average score of collaborators in the Continuous Learning Program; average rating of collaborators in the performance evaluation |
| | Motivated and committed people, sensitive to the community needs (2) | Collaborators' absenteeism index; customer satisfaction on services index |
| Investments | Assets (infrastructure and technology) (2) | Non-performed treatments due to lack of medicine index; investments on infrastructure over total budget |
| | Marketing/Promotion (1) | Total number of publications concerning AMPA in internal or external media |
| | Collaborators' training (2) | Number of courses offered to collaborators; collaborators' attendance to courses index |
| Financial | Costs (2) | Average cost per patient treated; cost reduction due to use of medical protocols |
| | Budget increase (1) | Annual budget increase |

Appendix 11 – Set of indicators selected by the Medical Coordinator

| Perspective | Critical Success Factor | Key Performance Indicators |
|---------------|--|---|
| Customers | High quality of care (2) | Average time of patient in the system; average number of consultations per pathology (for the most relevant pathologies) |
| | Education/Prevention (1) | Patients' absenteeism index |
| Processes | Good knowledge management (3) | Number of scientific publications; attendance to congresses in the Healthcare sector; number of hours of training per resident students in the ambulatory |
| | Well-designed, safe, efficient and effective processes. Infrastructure, technology and materials (2) | Number of adverse events; average time to schedule a consultation |
| Collaborators | Skilled and updated people (2) | Average score of collaborators in the Continuous Learning Program; number of severe and catastrophic events |
| | Motivated and committed people, sensitive to the community needs (3) | Collaborators' absenteeism index; collaborator satisfaction index; customer satisfaction on services index |
| Investments | Assets (infrastructure and technology) (1) | Investments on infrastructure |
| | Marketing/Promotion (1) | Total number of publications concerning AMPA in internal or external media |
| | Collaborators' training (1) | Number of courses offered to collaborators |
| Financial | Costs (2) | Average cost per patient treated; cost reduction due to use of medical protocols |
| | Budget increase (1) | Annual budget increase |

Appendix 12 – Set of “must” indicators according to the prioritization process

| Perspective | Critical Success Factor | Key Performance Indicators |
|---------------|--|--|
| Customers | High quality of care (4) | Number of new cases; average number of consultations per pathology (pathologies to be defined); customer satisfaction on health index; reduction of medicine consumption (to be defined) |
| | Education/Prevention (1) | Patients' absenteeism in scheduled returns index |
| Processes | Good knowledge management (2) | Number of scientific publications; average number of hours of training per resident students in the ambulatory |
| | Well-designed, safe, efficient and effective processes. Infrastructure, technology and materials (2) | Number of adverse events; average time to schedule a consultation |
| Collaborators | Skilled and updated people (2) | Average score of collaborators in the Continuous Learning Program; number of severe and catastrophic events |
| | Motivated and committed people, sensitive to the community needs (3) | Collaborators' absenteeism index; collaborator satisfaction index; customer satisfaction on services index |
| Investments | Assets (infrastructure and technology) (1) | Investments on infrastructure over total budget |
| | Marketing/Promotion (1) | Total number of publications concerning AMPA in internal or external media |
| | Collaborators' training (1) | Number of courses offered to collaborators |
| Financial | Costs (2) | Average cost per patient treated; cost reduction due to use of medical protocols |
| | Budget increase (1) | Annual budget increase |

Appendix 13 – Indicators and available past data

| BSC AMPA | 2011 | 2012 |
|---|--------|--------|
| CUSTOMERS | | |
| Number of new cases | NA | 2269 |
| Average number of consultations - Asthma | NA | NA |
| Average number of consultations - Allergic Rhinitis | NA | NA |
| Average number of consultations - Obesity | NA | NA |
| Customer satisfaction index - Health | NA | NA |
| Adherence to pharmacological treatments | NA | NA |
| Patients' absenteeism in scheduled returns | NA | NA |
| COLLABORATORS | | |
| Number of severe and catastrophic events | NA | NA |
| Average score in PEC (Continuous Learning Program) | 150,7 | 161,3 |
| Collaborators' absenteeism index | NA | 1,55% |
| Collaborator satisfaction index | 62 | 63 |
| Customer satisfaction index - Service | NA | 3,35 |
| PROCESSES | | |
| Number of adverse events | NA | 158 |
| Average time to schedule consultation | NA | 37 |
| Number of scientific publications | 0 | 0 |
| Average number of hours of training per student | NA | NA |
| INVESTMENTS | | |
| Percentage of budget invested in infrastructure | NA | 1,54% |
| Number of publications referring to AMPA in internal or external medias | 4 | 3 |
| Number of courses per collaborator per year | NA | NA |
| FINANCIAL | | |
| Percentage budget increase | NA | 50,46% |
| Average cost per patient treated | 113,57 | 142,49 |
| Percentage cost reduction due to the use of medical protocols | NA | NA |