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INTERTWINING MANAGEMENT ACCOUNTING CHANGE AND CHANGE MANAGEMENT THEORIES IN RESEARCH ON PERFORMANCE MEASUREMENT SYSTEMS IMPLEMENTATION

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1. Introduction

The design, implementation, and use of management accounting systems have been a topic that aroused great interest both among researchers and practitioners. In the last thirty years, phenomena such as increased competition, information systems innovation, and technological change have led companies to frequently modify their strategies (Kotter, 1995) and adopt more advanced management accounting tools (Shields, 1997).

Historically, the interest in more developed management accounting systems was sparked by the publication of Johnson & Kaplan's (1987) seminal work "Relevance Lost," which suggested that old management accounting systems, mainly based on financial measures, were not sufficient anymore and sometimes even detrimental.

Years later, the subject of how management accounting systems are developed, introduced, implemented, or changed is still relevant, and management accounting change has become, by all means, an important line of research. Some significant examples of the new management accounting mechanisms that spread considerably starting from the 90s are the new cost management systems such as activity-based costing (Kaplan & Bruns, 1987), and the more "balanced" performance measurement and management systems (Otley, 1999; Franco-Santos et al., 2012), composed of both financial and non-financial indicators, like the balanced scorecard (Kaplan & Norton, 1992) or the Performance Prism (Neely, 2002).

Concerning the performance measurement and management systems, which are the focus of this work, many different issues emerged regarding their implementation (Bourne, Mills, Wilcox, Neely & Platts, 2000). In spite of the growing interest in PMS, field experiences have revealed difficulties related to their development, implementation, and use (Wouter & Wilderom, 2008; Bourne, 2005; Bourne et al., 2002, Lewy & du Mee, 1998; McCunn, 1998). The introduction of contemporary measurement systems, such as the Balanced Scorecard, has often proved costly, both in strictly financial terms as well as organizational terms, with reference to the time and effort required. This could represent an obstacle for many companies (Speckbacher et al., 2003), especially small ones, which are less inclined to invest time and resources in a project of this type (Hudson, 2001). The literature also reports cases in which, despite the presence of the resources required, the design and implementation process turned out to be hard, leading to the risk of failure of the entire project (De Waal & Counet, 2009). In other cases, after apparent success in

implementing the PMS, firms have proven unable to use these systems effectively and regularly (Chiucchi, Giuliani & Marasca, 2014) , representing a further cause of failure. Even the Balanced Scorecard, which is the most popular and widespread tool, has been reported to have an implementation failure rate of around 70% (De Waal & Counet, 2009; McCunn, 1998).

The difficulties in designing these kinds of tools are many and primarily related to the need to adapt the PMS to specific business contexts and to identify which indicators are useful to measure and evaluate the company's performance (Miraglia, 2012; Wouters and Wilderom, 2008; Bourne et al., 2000; Neely, Richards, Mills, Platts & Bourne, 1997). Another relevant category of problems, which can lead to failure, especially during the implementation phase, is related to the human factor and behavioral and psychological aspects, such as resistance to change and the loss or absence of commitment towards the tool (Kasurinen, 2002; De Waal, 2002; Bourne, Neely, Mills & Platts, 2003a; Bourne, 2005; De Wall & Cournet, 2009; Lueg & Vu, 2015).

Scholars of management accounting change have adopted a massive number of different perspectives and frameworks to explain the complex and multidimensional phenomena of change (Johansson & Siverbo, 2009; Busco et al., 2007; Quattrone & Hopper, 2001; Kasurinen, 2002; Burns & Vaivio, 2001; Burns & Scapens, 2000; Cobb et al., 1995; Innes & Mitchell, 1990). Management accounting change turns out to be, then, an extremely interdisciplinary research field, as it offers studies based on diverse theoretical foundations, ranging from philosophy and sociology to organizational behavior and theory (Macchia, 2019; Sentuti & Cesaroni, 2019).

The most followed research lines in management accounting change are probably the ones founded on sociological theories and institutionalism (Alsharari et al. 2015; Wickramasinghe & Alawattage, 2007; Walker, 1998; Scapens, 1994), also thanks to the widespread frameworks by Burns & Scapens (2000) and Brignall & Modell (2000). Research grounded on institutionalism enabled the development of many research works which helped to understand the dynamics of change and stability in management accounting systems (Alsharari et al., 2015), especially within medium-large (Dossi & Patelli, 2008; Hussain & Hoque, 2002; Siti-Nabiha & Scapens, 2005) and public organizations (Norhayati & Siti-Nabiha, 2009; Yetano, 2013; Akbar et al., 2015).

However, the approach adopted by this thesis is very different from the institutional one, as it finds its roots not so much in sociological and institutional theories but instead in organization development and change (ODC), organization behavior (OB), and organization theory (OT), as well as in the field of psychological and behavioral sciences. In fact, it adopts specifically an

organizational change management perspective. Since change management theories and prescriptive models deal extensively with the issues related to individual transitions, Bourne et al. (2002, 2003b) have indicated that applying change management theories to PMS implementation studies may help better understand the success and failure dynamics. Moreover, Nudurupati et al. (2011) have argued that change management approaches appear very useful during the implementation, use, and update of PMS and moderately useful during the design phase. Scholars of PMS have also noted over the years a dearth of research on PMS and Balanced Scorecard implementation (Bourne et al., 2003; Tayler, 2010; Hoque, 2014) and have suggested that future research should focus on identifying strategies to support their successful introduction and use (Hoque, 2014).

Although Broadbent & Laughlin (2005) have suggested the intersection between studies on organizational change and accounting change, very few studies of management accounting change have attempted to understand whether the theoretical propositions of change management (Castellano & Leto, 2021), which propose a number of drivers and factors, actually increase the likelihood of success in introducing a PMS. Two exceptions in management accounting literature, which, however, do not concern the implementation of a PMS, but that of a cost management system, come from Ansari and Bell (2009), who applied Kotter's (1996) eight-step process, and Argyris and Kaplan (1994). Ansari & Bell (2009) found partial support for the work of Kotter (1996) and Senge (1990) but also pointed out the existence of gaps in their theories when applied to a technical activity such as accounting change. They suggest that accounting changes are still best approached as organizational changes, but the technical nature of accounting requires an adaptation of existing change management models. Argyris and Kaplan (1994) proposed a structured approach to facilitate ABC implementation based on the ODC studies and approach to change offered by Argyris (1970; 1985; 1990a;b).

Although change management theories do not seem to be frequently contemplated in management accounting literature, this study would like to explore their applicability within this field, considering its strongly interdisciplinary nature, in order to understand better why some firms are more successful than others in adopting PMS. In addition, it has been reported that a change in management accounting systems is sometimes related to a major organizational transformation or is part of it, which also implies a change in the organizational strategy and culture, in the technologies adopted and in the assigned tasks (Ogden & Anderson, 1999; Ansari & Bell, 2009;

Kasurinen, 2002): all kinds of topics considered by change management literature. Finally, focusing on specific management accounting systems such as PMS seems legitimate because the non-financial measurement is an essential instance of management accounting change (Vaivio, 1999b).

In particular, this thesis aims to understand, without adopting a prescriptive approach, if the enabling and hindering factors identified by organizational change management literature seem to play a role in the acceptance, dissemination, and use of PMS across a company. Thus, the ultimate goal is precisely to understand whether theories related to organizational change management can provide support in understanding the dynamics of success and failure in the implementation of PMSs and, of consequence, in management accounting change processes.

To do this, we will investigate, through the analysis of one case study, whether the change model developed by Stouten et al. (2018) helps to understand the process of implementation of these tools, as well as the role played by the factors that may facilitate or hinder it. We chose the framework by Stouten et al. (2018) because, unlike the majority of change management models (Rosenbaum, 2018; Hughes, 2016) it is based on scientific evidence and prior literature. Moreover, it is much more recent than the most popular change management models (Buchanan et al., 2005; Hiatt, 2005; Kotter, 1996; Galpin, 1996; Kanter, Stein & Jick, 1992; Beer et al., 1990; Cooperrider, & Srivastva, 1987) and hence takes into account the latest developments and findings of the research field.

The active implementation of a PMS is here regarded as a disruptive change (Burns and Vaivio, 2001), where a series of difficulties related to individuals' resistance to change, power, politics, and organizational culture may have to be assessed and managed (Carlucci, Schiuma & Sole, 2015). Moreover, we admit that the effective implementation of a PMS does not merely involve the introduction of a new management accounting tool but also developing new knowledge and skills, reorganizing assigned responsibilities, and even eventually modifying the organization's culture. Therefore, the kind of change analyzed here is not evolutionary, slow, or incremental. Instead, it is major, radical, and revolutionary (Gersick, 1991).

This thesis is structured as follows. The next chapter is devoted to a literature review on performance measurement systems. A brief historical overview of why and how PMS developed is first provided. After that, it is shown a rundown of the main models proposed in the literature. We then proceed by describing the set of characteristics associated to the adopted definition of

PMS that represent the boundaries into which this research is developed[1]. After that, a literature review on PMS implementation is presented, taking into account not only the studies on the subject from the field of management accounting but also from operations management and strategy.

The third chapter is entirely devoted to illustrating the main theories of change management and the theoretical framework of Stouten et al. (2018). Here the history related to the development of the change management models is delivered together with a description of the characteristics of the most successful proposals. The recent Stouten et al. (2018) framework is then analyzed in great detail, presenting the similarities and differences with the other previously proposed change models. An analysis of the enabling and hindering factors found in the model is also provided, comparing them with the factors identified in the literature related to PMS.

We then proceed by summarizing the PMS enablers and hinderers that are considered crucial in the change management literature and Stouten et al. (2018) framework, while are less explored by the PMS literature. Also motivations for the suitability of the methodology to the research purpose are provided.

In the fourth chapter, we present the methodology of the case study, explaining why the case was chosen, how the data were collected, and the approach used to carry out their analysis.

In the fifth chapter, we present the results, first giving a summary description of the case, the change process, and the control system put in place. On the other hand, the last paragraph is wholly devoted to presenting the coded data to show the results that are later interpreted and discussed. To analyze these data, we used Bourne et al.'s (2000) framework to decompose the change process into different stages and Stouten et al.'s (2018) framework to identify the hindering and enabling factors and the timing with which the most significant events for the change process happened. We also used Kasurinen's (2002) framework, which helped us explaining the effects of the identified enablers and hinderers.

In the discussion, we evidence the theoretical, empirical, and practical contributions of the thesis. With reference to the theoretical contributions, we proposed an expansion of the frameworks of Bourne et al. (2000), already employed in the previous chapter, to provide a more

[1] As we will see later, there are different definitions of PMS and different authors attribute different characteristics to them. By way of example, activity-based costing is not considered a PMS here, while in some studies they consider it as such.

effective presentation of the results, and Kasurinen (2002), made possible by cross-referencing them with the framework of Stouten et al. (2018). From an empirical point of view, this work helps to underscore the relevance of certain elements considered important by the change management literature but ignored or little considered by the PMS literature (e.g., change readiness). From a practical perspective, although the Stouten et al. (2018) model has not been applied in the field, we have gathered evidence that supports the usefulness of the approaches contained in the model as well as the role played by enabling and hindering factors.

Finally, the seventh chapter, devoted to conclusions, summarizes what has been done in this thesis and the most significant contributions[2].

[2] The contributions made are summarized in more detail in the conclusions than in this introductory paragraph.

2. Performance Measurement systems implementation literature review

2.1 Chapter summary

This chapter provides a literature review on the implementation of performance measurement systems. The purpose of the chapter is to give an overview of the current state of research related to the process of introducing and updating such systems in companies. This chapter opens with a paragraph on the history of performance measurement systems. It starts by briefly outlining the history of early management accounting & control systems. Consequently, the reasons that led to the development of the modern, integrated and holistic systems currently in use are discussed. In addition, a brief analysis of the most popular models is provided, presenting their main features, strengths, and weaknesses. The first paragraph concludes with a description of the characteristics that a management accounting & control system should accomplish in order to be considered as a PMS in this study. This is important to avoid confusion with some tools that are considered as PMS in other studies, but are excluded in this study and/or vice versa..

The second paragraph delivers an overview of the different definitions common in the various strands of research that have ventured into the topic of PMS, such as: management control, strategic management, and operations management. Next, two theoretical and holistic frameworks developed in the field of management control, respectively by Otley (1999) and Ferreira & Otley (2009), are presented in order to give an idea of the main issues related to research on PMS design and use.The third paragraph is more properly devoted to the literature review related to implementation. This section opens with a presentation of Bourne et al.'s (2000) framework, which is particularly useful for analyzing this type of phenomenon because it adopts a processual, rather than a static, perspective. Their framework, which breaks down the process of introducing PMS into the respective stages of design, implementation, and use, allows us to systematize the literature review more accurately. This third paragraph is, in fact, divided into additional subparagraphs, one for each stage, as identified by Bourne et al. (2000).

The contributions collected in the literature review are once again from different strands of research to give a comprehensive view of the dynamics, difficulties, enabling factors, benefits, and disadvantages related to the implementation of PMS.

2.2 PMS brief history and main models

2.2.1 PMS historical development

Through historical reconstructions based on old records, it has been established that the progenitors of multidimensional performance measurement systems are none other than cost accounting systems (Bititci, Garengo, Dörfler & Nudurupati, 2012).

The practice of preparing reports and accounting documents is extremely ancient and widespread well before the years of the industrial revolution and the advent of capitalism. According to Johnson (1981), the accounting practice started with the use of double-entry bookkeeping, which can be traced back to the late 13th century (Bititci et al., 2012). However, these accounting documents were mainly used to keep track of the relationships and transactions between the merchant or entrepreneur and their customer and concerned only the relations outside the organizations.

The development and use of management accounting tools, which looked internally at the organization, is a relatively recent practice and can be found starting from the nineteenth century (Johnson & Kaplan, 1987). Specifically, the first companies to need internal accounting information for making decisions and monitoring were the cotton textile mills that appeared in that period in England and the United States (Johnson, 1981).

It was, therefore, during the industrial revolution that the need for control increased. As noted by Johnson (1981), this period was characterized, among other things, by the shift from piecework payment to the wage and salary system. This change has led to the need to better assess and control the costs incurred and the level of employee efficiency. Consequently, these phenomena also made it necessary for companies to develop a set of new tools to measure these aspects.

By the 1930s, in the span of just over 100 years, all the more traditional management accounting tools would have already been developed (Johnson & Kaplan, 1987).

In 1912, Donaldson Brown, a financial executive and corporate director at Dupont, invented a formula for breaking down ROE known as the Dupont Analysis or ROE tree. This approach included calculating a series of economic-financial indices, namely, in addition to ROE itself, ROA, and ROI (Chandler, 1962). These indicators would become extremely widespread and are still used today to evaluate the performance of companies.

Another tool that is still extremely used today but that has relatively distant origins is the budget. In fact, the first concept of a business budget was developed at General Motors in the 1920s (Chandler, 1962). Previously, the concept of budgeting was already known, but it was only applied at the governmental level. Thus, prior to the General Motors case, it was not common practice to develop a budget, while in later years, it would become, relatively quickly, one of the most widely used tools for American companies.

Between 1930 and 1980, there were no more significant innovations in relation to management accounting tools (Bourne et al., 2003b). Starting in the 1970s, however, there was a rapid increase in the perception that these more traditional tools were no longer in step with the times and could no longer effectively support the business decision-making processes alone.

With the advent of the concept of differentiation and cost leadership strategy, developed at the end of the 1970s (Porter, 1979; Porter, 1980; Porter & Millar, 1985), these tools began to show their limitations even more (Simmonds, 1981). As just mentioned, some U.S. companies introduced traditional tools such as Dupont Analysis or budgeting in the early decades of the twentieth century, a period when the strategy most applied by companies was that of cost leadership (Neely & Bourne, 2000). Therefore, these tools proved to be more effective in encouraging strategies based on efficiency and productivity rather than on offering "premium" services or products and did not offer adequate guidance for those companies that wanted to pursue differentiation strategies. Until the 1950s, when the phenomenon of globalization had not yet fully established itself, the focus in strategic terms of enterprises continued to be devoted entirely to reducing costs and increasing efficiency and productivity. The need to develop alternative tools was, therefore, not actually perceived. It is since the 1960s, with the post-war economic recovery of many countries and the effective advent of globalization, that the differentiation strategy has become more prevalent among companies (Bititci et al., 2012). In particular, previously less considered elements such as product quality, innovation, production and delivery time, and customer satisfaction gained significance, making it necessary to monitor several new critical success factors previously nonexistent (Bourne et al., 2003a; Neely & Bourne, 2000).

To be precise, the criticisms made at the time against these tools were numerous and varied and not connected only to the concept of differentiation. The most important ones were to encourage short-termism and managerial myopia (Kaplan, 1984; Merchant, 1990; Merchant & Van Der Stede, 2007), to focus excessively on identifying deviations to be corrected rather than

seeking continuous improvement (Johnson and Kaplan, 1987), to constrain responsiveness and favor barriers to change (Sutcliffe and Heyns, 2001), to assume a backward-looking (Dixon et al., 1990), to be disconnected from organization strategy (Kaplan and Norton, 1996), to focus too much on the inside of the company (Kaplan and Norton, 1992), to favor manipulation of short term performance measures (Merchant, 1990).

Because they encouraged managerial short-sightedness and excessive focus on economic-financial variables, tools such as the Dupont Analysis were even accused of having damaged the competitiveness of the U.S. manufacturing industry (Hayes and Abernathy, 1980) when globalization was making competition among companies increasingly fierce.

It can be said that the perception of the inadequacy of the traditional tools culminated with the landmark work of Johnson & Kaplan (1987), who reported a loss of relevance of management accounting due to the obsolescence of the systems and approaches typically applied in this area. In this same work, the two authors proposed activity-based costing, a cost accounting system that aims to better support the calculation and management of business costs compared to traditional techniques.

Despite the great innovativeness of the new cost accounting approaches, this was only the beginning of a revolution in management control. As early as the beginning of the 1990s, new management accounting systems that were more holistic and integrated, as well as capable of monitoring more qualitative and non-financial aspects, would emerge (Bourne et al., 2003b).

To be accurate, by the late 1970s, the need to introduce tools to monitor more qualitative and non-financial factors was already widely perceived, but the initiatives at the companies level were still somewhat limited (Neely & Bourne, 2000; Simmonds, 1981). Typically, early attempts involved management control tools that allowed the measurement of non-financial indicators but lacked a holistic perspective completely. These indicators were not systematized through frameworks that facilitated the readability and comprehensibility of information.

Academics and consultants developed more modern performance measurement systems in response to this lack of systems integration (Neely & Bourne, 2000). Not by chance, the new models and emerging techniques were specifically intended to overcome the limitations of more traditional approaches (Pozza, 2000)..

2.2.2 PMS main models

Although the most modern performance measurement systems have been developed since the 1990s, there were also earlier cases of tools and frameworks possessing some of their distinctive characteristics.

Many consider the Tableau de Bord, a tool developed in France at the end of the 1800s, to be a forerunner, if not the first example of PMS (Pezet, 2009). As will be seen shortly from the brief examination of some of the more mainstream models, the models often tend to have some common traits among them, and so it is possible to assume that each contribution on the topic has supported or influenced the development of subsequent proposals. If we look specifically at this tool, it already included the construction of dashboards of indicators, both financial and non-financial, aimed at monitoring business performance and critical success factors, just as in the most modern proposals. Moreover, the principles that should guide the construction of dashboards of indicators of the Tableau de Bord framework (Pezet, 2009) have many similarities (Speckbacher et al.,2003) with the balanced scorecard of Kaplan & Norton (1996). Although this tool aimed to assess the degree of success of the organization, it lacked an explicit connection with the company's strategy, and non-financial indicators concerned elements that were easily measurable physically (e.g., number of discarded raw materials, defective products, and delivery time) rather than aspects of a more qualitative nature (e.g., creativity, customer satisfaction and degree of innovation).

Moving to much more recent times, one of the earliest examples of modern PMS is probably the one developed in the field of operations management by Sink (1985) and refined by Sink and Tuttle (1989) (Folan & Browne, 2005). The model is based on the assumption that the performance of a company depends on the complex interrelationships existing among seven performance criteria, namely (I) effectiveness, (II) efficiency, (III) quality, (IV) productivity, (V) quality of work-life, (VI) innovation & (VII) profitability. While considered a "classic," the model has limitations and cannot be considered holistic, being focused mainly on the value chain (De Toni & Tonchia, 2001). For the latter reason, it can be said that, unlike holistic models, its focus was only on the inside of the company. Some factors considered essential such as the level of customer satisfaction, the strategy, the growth and learning, or the organizational culture, are not considered there.

The Performance Pyramid by Cross & Lynch (1988, 1991), sometimes referred to as SMART Model, is another of the first examples of the more advanced and recent PMS. This tool represents

in a structured form a series of elements to which the company must pay attention in order to obtain satisfactory strategic and financial results. The focus, unlike more traditional control tools such as the budget or the proposition by Sink and Tuttle (1989), is on both internal (e.g., internal costs and processes) and external elements (e.g., the market and clients) (Costabile & Cariola, 2004). Moreover, another innovative element of the SMART model, which will be taken up in even more evolved systems, consists in creating an explicit connection between the strategy pursued and the level of external effectiveness achieved by the company. In this case, the non-economic-financial indicators already included elements of a more qualitative nature, given that among the dimensions of analysis, there is also that of clients and their degree of satisfaction.

However, while aiming to give a more comprehensive and holistic view than the systems used previously, the proposal of Lynch and Cross (1991) leaves out some elements considered fundamental for the success of companies by other scholars, such as learning, innovation, and organizational culture (Sveiby,1997; Kaplan & Norton, 1992).

Soon after the proposal of the performance pyramid, the balanced scorecard was presented (Kaplan & Norton, 1992, 1993, 1996, 2001). The latter is still one of the most "mainstream" tools today, given its widespread use in companies (Marchi & Maraghini, 2018). Consequently, it is also one of the most considered tools not only by practitioners but also in the field of research, as evidenced by the numerous publications on the subject (Sigalas, 2015; Hoque,2014 Speckbacher, Bischof & Pfeiffer, 2003; Kasurinen, 2002).

This framework, which has been subject to minor updates by its own authors over the years (Kaplan & Norton, 1992, 1993, 1996, 2001, 2004), distinguishes four perspectives of analysis, namely: financial, internal business process, customer, and innovation and learning. Nevertheless, unlike the performance pyramid, the balanced scorecard is characterized by a much more flexible structure. The authors argue that it can be potentially applied to many different contexts and adapted to the companies' needs because the elements of analysis can be significantly modified, adding additional perspectives or removing some of them. In fact, Lueg & Silva (2013) found 27 papers involving different BSC modifications. A typical example of these augmentations is the so-called sustainability balanced scorecard (Hansen & Schaltegger,2016; Figge, Hahn, Schaltegger & Wagner, 2002), which basically adds to the four classic perspectives, a fifth perspective related to environmental and social issues. This version of the balanced scorecard became widespread in

many companies due to the increasing importance of the topic of environmental and social sustainability at a strategic level (Cinquini, Miraglia & Giannetti, 2016).

The BSC remains, first and foremost, a strategic control tool; therefore, the indicators that make it up must help understand the quality of the strategy adopted and the effectiveness and efficiency with which it is implemented (Ahn, 2001). According to its developers, the number of indicators that compose the system should be limited to at least 15 but no more than 20 (Kaplan & Norton, 1993) in order to give the organization's top management a holistic but concise view of corporate performance. However, it is possible to develop a series of secondary dashboards that provide greater detail on the performance of certain elements and allow a better understanding and monitoring of certain phenomena and processes for the managers of the lower levels (Kaplan & Norton, 1996). Another feature of originality compared to other proposals is the distinction between leading and lagging indicators. Lagging indicators represent elements, often of greatest interest to the company, that are directly influenced by the results achieved in the leading indicators. According to Kaplan & Norton (1996), achieving positive results at the level of leading indicators promotes and enables the prediction of positive results at the level of lagging indicators. A simplistic example of this might be the relationship between sales quantity and customer satisfaction level, where the former can be seen as a lagging indicator while the latter as a leading one.

There are also tools that have been developed to support companies operating in specific sectors or contexts.

Among these, two that we cannot fail to mention, due to the degree of diffusion both among practitioners and in the field of research, are the intangible asset monitor (Sveiby, 1997) and the performance prism (Neely, 2002).

Sveiby (1997) created the intangible asset monitor to explain why the market value does not reflect the company's book value through the evaluation of business performance and intangible elements. Unlike the BSC or SMART model, this type of performance measurement tool focuses exclusively on the intangible and qualitative elements that make the organization successful, thus leaving out all those elements of a financial nature. This tool clearly lends itself to the application only in those companies that base their value on intangible elements such as image, brand, innovation capacity, know-how, etc. Sveiby (1997) states that the dimensions of analysis are namely internal structure, external structure, and individual competencies.

The external structure considers the type of relationships the company has with the outside world, i.e., the relationship with stakeholders, customers, and suppliers, the type of company and brand reputation, and other elements outside the company that impact the company's strategy and success. The internal structure takes into account internal elements such as the type of organizational structure, the way work is divided up among individuals, the type of patents and copyrights that the company holds, the climate in the organization, and the type of culture. Finally, the individual competencies dimension takes into account the experience, characteristics, know-how, and skills possessed by the people working in the company. According to this approach, for each element or asset identified as essential to business success, at least one indicator should be found to assess its degree of growth, one to analyze its level of renewal/innovation, one to monitor the level of efficiency, and one to assess its stability/durability. While a tool such as the BSC relies heavily on the synthesis and keeping the number of indicators to no more than 25, in this framework, the number of indicators is significantly greater, although the financial dimension is not considered.

Another popular tool is Neely's (2002) performance prism, which was designed to be applied specifically in those companies that base their success on stakeholder satisfaction and has gained prominence among practitioners and in the research field. The element that immediately distinguishes this tool from the proposals seen so far is its focus on measuring the factors that impact the satisfaction of the company's stakeholders. In this case, the concept of stakeholder is to be taken broadly, leaving the possibility of considering not only shareholders but also clients, local communities, or even subjects within the company, such as the employees and managers themselves.

In closing, also deserving of mention is the model by Fitzgerald, Johnson, Brignall, Silvestro & Voss (1991), which was designed to be explicitly applied to service companies, and the model by Laitinen (2002), which was intended to be applied specifically to SME.

As we have seen, the offerings in terms of types of performance measurement systems are quite varied, and each tool has strengths and weaknesses. There are tools that present a greater focus only on certain aspects, such as SMART or the Intangible Asset Monitor, and others that instead take a more holistic approach, such as the balanced scorecard.

Nevertheless, from the experiences of both academics and practitioners, the superiority of one system over another has not been established (Choong, 2013). Certainly, the balanced scorecard

remains the most widely used and studied tool (Hoque, 2014), but this fact is not sufficient to attest to its validity in every situation. As seen above, some tools are developed for specific purposes and could therefore be more useful in some cases. For example, in firms where stakeholder satisfaction is particularly important, a tool such as the performance prism may be more effective. Or, again, when firms base their success on intangible factors, the Intangible Assets Monitor may be the best choice. Another element to consider is the difficulties and costs that might be involved in implementing such a tool. Even though these tools may be useful, some companies do not have the resources or competencies to implement them. For example, the BSC generally requires fairly well-developed information systems in order to be able to gather and systematize information to make up the system's indicators, but small companies rarely have them (Amir, 2014; Hudson et al., 2001). The impossibility of finding a successful universal approach regarding the choice of model and how to design, implement and use PMS is an issue widely espoused in the management accounting literature based on contingency theory (Gatti & Chiucchi, 2017; Otley, 2016).

Companies should therefore decide on the basis of their knowledge, available resources, and control needs which system is most suitable for them. Moreover, even once the model to be used has been chosen, an effort to adapt the system itself remains necessary by choosing the indicators, elements, and phenomena that are to be controlled and managed (Ahn, 2001). Yet, it is not a given that the process of implementing such systems starts with the choice of a precise and defined model. To begin with, there are cases of companies using performance measurement tools that do not explicitly refer to one of the "mainstream" models found in the literature (Giovannoni & Maraghini, 2014; Sousa & Aspinwall, 2010). Second, the literature also reports cases in which PMS were gradually developed from the analysis of specific phenomena. In these cases, systems have only, over time, acquired the feature of multidimensionality typical of such systems (Presti, 2021; Jazayeri & Scapens, 2008).

As we will see in section 2.3, one type of difficulty encountered in introducing these systems is actually related to identifying the most effective indicators for monitoring and managing performance.

Nevertheless, with the increasing diffusion of the new MAS and PMS, it has been realized that the problems are not only of a strictly technical nature but also related to the human factor and to those individuals who must develop and use the new tool.

2.2.3 Setting boundaries to the thesis: what type of PMS?

To conclude this introductive section on PMS, it is important to establish the boundaries of this research thesis and to clarify what is meant here by performance measurement systems. The proposals in terms of management accounting tools have been many, and not all of them fit neatly into the definition that we would like to adopt here.

Specifically, in this work, we refer to the classification of contemporary performance measurement systems given by Franco-Santos et al. (2012). The scholars argue that there are four types of performance measurement systems identified on the basis of the components and the key uses of these systems. All four of these typologies are made up of both financial and non-financial performance indicators, but in some cases, there is an explicit link with the strategy, while in others, the link is implicit, but still present. Concerning the key use, they find that these tools may be used (I) only to inform managerial decision-making and assess organizational performance. They may be used (II) to inform managerial decision-making and assess organizational and managerial performance. Finally, they may be used (III) to inform managerial decision-making, assess organizational and managerial performance, and influence monetary rewards.

In light of the characteristics suggested by Franco-Santos, PMS here refers to tools made up of both financial and non-financial measures, which are linked to the company's strategy.

Regarding the purpose of their use, it is assumed in this study that they can be used only to inform managerial decisions and evaluate business performance, or also to evaluate managerial performance and/or assign incentives.

It is, therefore, clear that the most classic management accounting systems, such as Dupont's analysis, or the traditional budget and cost accounting tools, like activity-based costing, and time-driven activity-based costing, are excluded from this work[3]. In fact, in Dupont's analysis, the traditional budget ad cost accounting tools typically do not have an explicit connection to the companies' strategies and do not make use of non-financial indicators.

On the other hand, tools such as the performance pyramid (Lynch & Cross, 1991), the balanced scorecard (Kaplan & Norton, 1996), the performance prism (Neely, 2002), and the

[3] We would like to emphasize that this exclusion is specific to this work precisely because it adopts the defining characters proposed by Franco-Santos et al. (2012). The tools mentioned here are treated elsewhere as PMS in their own right (Marasca, 2018; Lizza, 2007; Azzone, 2006).

intangible asset monitor (Sveiby, 1997) are here considered as PMS. Indeed, these tools are geared toward the strategic evaluation and control of the company and involve the use of non-financial variables.

2.3 Definition and theoretical background

The definitions of performance measurement systems are numerous and highlight different aspects (Franco-Santos et al., 2007). The same subject has involved scholars from multiple disciplines who have taken different perspectives. Because of the holistic nature of these tools, this topic has been addressed, in fact, not only by scholars of management accounting and control (Marasca, 2018; Lizza, 2007; Azzone, 2006; Comuzzi, 2006) but also by researchers belonging to the fields of marketing, human resources, information systems, strategy, and operations management (Marr and Schiuma, 2003; Neely, 2008; Franco-Santos & Doherty, 2017).

For example, the balanced scorecard itself, although created by management accounting scholars (Kaplan & Norton, 1992), is a widely analyzed, studied, and applied tool in the disciplines of operations management (Smith & Goddard, 2002; Bourne et al., 2000), human resources (Sharma, Sharma & Agarwal, 2016; Biron, Farndale & Paauwe, 2011; Rhodes, Walsh & Lok, 2008) and strategic management (Atkinson, 2006; Butler, Letza & Neale, 1997).

While the variety of approaches and perspectives is probably a positive element that contributes to a more comprehensive view of the phenomenon of business performance measurement, this has also fostered confusion in defining what PMSs are (Franco-Santos et al., 2007).

The most widely accepted definition in operations management is probably the one given by Neely et al. (1995), who define PMSs as a "set of metrics used to quantify both the efficiency and effectiveness of actions." Another often-cited definition is the one from Bititci et al. (1997), who suggest that PMS is "the heart of the performance management process and it is of critical importance to the effective and efficient functioning of the performance management system" and that it may be used as a "reporting process that gives feedback to employees on the outcome of actions."

If we look at the research field of strategic management, one of the most cited definitions comes from Atkinson (1998), who affirms that "performance measurement focuses on one output of strategic planning: senior management's choice of the nature and scope of the contracts that it

negotiates, both explicitly and implicitly, with its stakeholders. The performance measurement system is the tool the company uses to monitor those contractual relationships".

There are also definitions developed in the management accounting and control field that basically see these tools as an evolution of the more traditional MAS. In this area of study, one of the most considered is Otley's (1999) definition, which describes PMS as a "system that provides the information that is intended to be useful to managers in performing their jobs and to assist organizations in developing and maintaining viable patterns of behavior." Another is provided by Broadbent and Laughlin (2009), who define PMS as "a control framework which attempts to ensure that certain ends are achieved, and particular means are used to attain these ends."

According to Otley (1999), the elements that compose a performance measurement system are (1) objectives, (2) strategy, (3) targets, (4) rewards, (5) and information flows (feedback and feedforward). From this framework, it can be understood that Otley's focus is not only on measuring performance *per se* but also on managing it.

This work was subsequently taken up and expanded in the work by Ferreira and Otley (2009) to provide a broader view of the key aspects of the performance measurement and management systems and the issues connected to their design, implementation, and use.

The elements that compose this framework are namely (1) mission and vision, (2) key success factors, (3) organization structure, (4) strategies and plans, (5) key performance measures, (6) target setting, (7) performance evaluation, (8) reward system, (9) information flows, systems and networks, (10) PMS use, (11) PMSs change, and (12) strength and coherence.

According to Ferreira & Otley (2009), the first step in developing a PMS is to identify the company's (1) mission and vision, which represent, respectively, what the company does, its core purpose, and the desired future state of the organization. Without these elements, it is not possible to understand which phenomena are relevant to the organization and must be controlled and managed.

The (2) key success factors represent the areas, activities, attributes, competencies, and capabilities that have an essential role for the success of the organization.

Sometimes also referred to as critical success factors, these elements have received numerous definitions over the years (Rockart, 1982; Anthony, 1965; Daniel, 1960) and have also assumed a central role in the practice of performance measurement (Rangone, 1997; Jenster, 1987). The achievement of satisfactory results at the level of critical success factors or areas is generally

considered fundamental to the success and survival of organizations (Rockart, 1982). It is for this reason that for the company to thrive, it can be useful to identify these factors and consequently choose measures and indicators to monitor the results achieved in these areas (Rangone, 1997).

(3) Organizational structures consist in how work, tasks, and roles are assigned and divided among the individuals who are part of a company. This element is also considered part of the management control systems by other frameworks (Malmi & Brown, 2008) because it defines in some way what are the activities, actions, and performances expected by each individual present in the company. Consequently, it can be said that organizational structures are part of the management control as they establish what individuals are allowed or not allowed to do in the company.

(4) Strategies represent the direction of the firm and the long-term goals the organization intends to achieve. Strategies are considered an essential element for the development of any modern performance measurement system. The strategy is, in fact, subject to monitoring and measurement in all the most recent models (Castellano, 2011; Neely, 2002; Kaplan & Norton, 1996; Lynch & Cross, 1991) presented in the previous paragraph. Francos-Santos et al. (2012), who have provided an extensive review on PMS, also state that strategy monitoring is one of the defining features of contemporary performance measurement tools. Kaplan & Norton (2004) have even developed the concept of strategy maps to describe the strategy's key elements more easily and thus facilitate the implementation of the BSC and the identification of indicators that are actually useful for strategic management and control.

(5) Key performance measures are the financial or non-financial indicators used at different levels of the organization to assess the company's performance and capability to achieve its strategy and goals. As already mentioned, when introducing PMS in a company, a lot of effort may go into identifying what needs to be measured. On the one hand, there is the matter of understanding which indicators are most useful to the firm (Rangone, 1997). On the other hand, there is also the issue of identifying indicators that are actually measurable for the company based on its capabilities and information systems (Marchi, 2011; Neely et al.,2005). Sometimes, certain indicators, however useful they may be, are omitted precisely because of the organization's inability to collect the data needed to compose that indicators. For example, not all companies have the resources to compose a customer satisfaction index based on the administration of questionnaires or interviews, although this is an indicator of potentially great interest to many.

(6) Target setting is the process of identifying objectives to be assigned in order to evaluate and reward performance. According to Ferreira & Otley (2009), this element is of fundamental importance because it makes it possible to verify whether the company is achieving the objectives it has set itself and to compare the results actually achieved with the desired ones. Where targets have not been met, it creates an opportunity to understand why the desired results have not been achieved and what future action needs to be taken. More advanced systems even make it possible to predict when the company cannot meet certain targets, allowing adverse events to be countered more quickly. In addition, goal setting plays a key role in terms of control because it makes individuals realize what elements they need to focus on. It guides and directs the actions of subjects who can be held accountable for achieving certain goals. With regard to this last aspect, there have been many studies aimed at investigating which are the most effective approaches to target setting, observing, for example, the effect of assigning challenging targets compared to easily achievable targets or, again, investigating which methods of assigning targets create a greater commitment to their achievement (Webb, 2004; Ittner, Larcker & Meyer, 2003).

(7) Performance evaluation is a process that can consist of both formal performance appraisal activities and informal guidance from managers on what is deemed important. Some companies adopt a formalized performance appraisal system in order to evaluate individuals according to well-defined criteria. In other cases, the approach may be less formal and based rather than on specific parameters on managers' subjective perceptions (Franco-Santos, 2012). The latter approach becomes "unavoidable" when the performance measurement system is insufficiently developed and does not allow for an accurate assessment of individual and/or organizational performance.

(8) Rewards are the outcome of performance evaluations and may include expressions of approval and recognition by senior managers, financial rewards, and promotions. Many studies have focused on the topic of incentive and reward systems (Rizzotti, 2019; Cardinaels & Yin, 2015; Speckbacher & Wentges, 2012; Fullerton & McWatters, 2002; Awasthi, V., Chow, C. and Wu, A. 2001; Bonner, Hastie, Sprinkle & Young, 2000), to understand how and when they are used, what is their effectiveness in improving performance and pushing individuals to engage in desired behaviors, and what are their effects on motivation. For example, Cardinaels & Yin (2015) found that how managers use incentives can affect the use of truthful reports and signal distrust but also leak important information about the social norm to which employees seek to conform.

Or, again, Fullerton and McWatters (2002) have shown that the use of non-traditional performance measures, incentive systems of employee empowerment, and compensation rewards for quality production affects the level of just-in-time implementation.

(9) Information flows, systems, and networks are essential for the functioning of a PMS and the collection of information needed to compose the performance indicators. Information systems thus constitute, to some extent, the backbone of management accounting & control systems and PMS(Marchi, 2011; 2003). Indeed, the type of indicators that can be adopted within a PMS depends on the type and amount of data that the company may have at its disposal and on its ability to process them. In our times, where phenomena such as big data are emerging, the challenge for companies has become not only to gather information but also to refine it in order to obtain indicators that are actually useful for understanding the company's performance and guiding decision-making processes (Huerta & Jensen, 2017). Recent I.T. developments related to the internet and social media have given companies the opportunity to access a whole range of new information, which, if not turned into synthetic indicators, may be difficult to understand or read. The information gathered through these systems could be feedback or feedforward (Ferreira & Otley, 2009). The former supports the identification and implementation of corrective actions without changing the substance of the company's activities. The latter could, instead, support a rethinking of strategies and what the company should do.

(10) The use of PMS consists of managers' use of information and control systems. Indeed, several studies report different modalities and purposes of use by managers when using these systems. For example, there are instances where these systems are used with a strictly diagnostic and decision-support approach (Simons, 1995). Still, there are also many situations in which these systems are actually used to influence people's behavior toward the assumption of desired attitudes and achievement of performance standards (Simons, 1995).

(11) PMSs change expresses the need to adapt and update PMS over time to address and align with changes in company strategy and the competitive, economic, social, and political environment. More generally, as mentioned in the introduction to this work, the issue of change has been addressed extensively both in the field of management accounting systems, giving rise to the internal strand of management accounting change studies, and specifically in the field of PMS, with contributions given not only by accounting experts but also by strategy and operations management scholars.

(12) Strength and coherence represent the level of alignment and coordination among the different components of the whole system to deliver efficient and effective outcomes. In fact, Ferreira & Otley (2009) point out that the system is more than its single components because of the virtuous relationships among the elements that are part of it. Still, it may happen that although the system is designed well at the level of particular components, these components may not be well-coordinated and integrated with each other, entailing negative effects on the firm's management and control capabilities.

Otley's (1999) and Ferreira & Otley's (2009) frameworks significantly contributed to defining the conceptual nature of any PMS (Broadbent & Laughlin, 2009). In the field of research, these frameworks can be used to determine the elements to consider when conducting studies on performance measurement and management systems.

Another relevant conceptual framework for analyzing PMS use has been proposed by Broadbent and Laughlin (2009), who developed it to extend the work of Otley (1999). In their paper, the two authors define two macro-types of PMS, within which any management control system can be categorized, i.e., transactional PMS and relational PMS. These two categories are developed taking into account the concept of rationalization addressed extensively by Weber (1978) & Habermas (1984). In particular, Broadbent & Laughlin (2009) argue that relational PMS are driven by the exercise of communicative rationality among stakeholders, which is the process by which they discuss and attain consensus on the goals the company needs to achieve. In the presence of relations PMS, the management tends to be more comfortable with qualitative performance indicators, although also quantitative indicators are used. The performance indicators and relative targets are assumed to be discursively agreed upon among the stakeholders, who feel the ownership of the PMS. On the other hand, they claim that transactional PMS are driven by the application of instrumental rationality to choose measures and targets, which can be defined as highly functional and directed to specific outcomes process. This time, ownership of the PMS is "associated and linked either to a particular sub-group of stakeholders or to an abstract requirement seemingly owned by no-one" (Broadbent & Laughlin, 2009). In this category of PMS, there is a focus on avoiding a lack of precision in the system, which impacts the choice and use of means to achieve the targets, making managers more comfortable with the use of precise and quantitative performance indicators.

Although both the frameworks by Ferreira & Otley (2009) and Broadbent & Laughling (2009) shed some light on the conceptual nature of performance measurement, they are quite broad in scope. They do not provide particular support in circumscribing the characteristics a PMS should have to determine which management control systems should be considered as PMS and which not. The frameworks effectively apply to more traditional and innovative management accounting and control tools. In fact, Otley (1999) applied the first version of the framework to both companies that use advanced PMS, such as the BSC, and to companies that use only traditional tools, such as the budget. The authors of these frameworks see performance management activity as a natural evolution of management control, and these frameworks should therefore be viewed in this light. In other words, their focus is not only on performance measurement but also on the ways in which performance is controlled, influenced, and managed.

However, these frameworks do not present themselves as entirely suitable for encoding the phenomenon that we want to analyze in this study due to their static nature. Ferreira & Otley's (2009) framework itself, while presenting a dimension specifically devoted to the change and upgrade of systems in use in companies, does not specifically outline what the phases, steps, or the sequentiality of events related to the implementation process of a PMS might be.

For this reason, it is hereby chosen to adopt, in the literature review, the theoretical framework of Bourne et al. (2000), which presents a focus on sequentiality and the process of introducing PMS. The next section will elaborate on the framework of Bourne et al. (2000) and, more generally, the implementation process.

2.4 PMS Implementation process

According to Bourne et al. (2000) and Nudurupati et al. (2011), the process of implementation and use of a PMS is actually decomposable into three phases, which are respectively (I) design, (II) Implementation, and (III) use. These phases occur both when a system is introduced for the first time and when an existing tool is updated to remain effective in meeting business needs. According to these authors, PMS should be updated regularly to remain useful for the company over time as the company's strategy or critical success factors change. Yet, it has been recognized that there is often some lag in updating PMS even when changes in the external environment evidently point to doing so, leading to significant issues in terms of fit with the organization's environment and strategy (Nudurupati, Tebboune, & Hardman, 2016; Melnyk et al., 2014; Bititci

et al., 2012). Okwir, Nudurupati, Ginieis & Angelis (2018) suggest that this delay may sometimes be related to the organizational complexity and the intricate relations between the elements that compose the PMS in use, which are getting increasingly sophisticated to respond to the growing complexity of the external environment.

The phases proposed by Bourne et al. (2000) basically represent a linear sequence through which the process of PMS implementation should progress. However, they recognize that these phases are conceptual and can overlap in practice since the different individual measures composing a PMS may be introduced with different timelines. At least within certain limits, the overlap between these phases is, in fact, taken for granted in many studies (Wouters & Wilderom, 2008).

According to Bourne et al. (2000), the (I) design phase consists of identifying the key objectives to be measured and the design of the key performance measures themselves. The (II) implementation phase starts when systems and procedures begin to be put in place to collect and process the data that enable the measurements to be made regularly. The (III) use phase consists of measuring the success level in implementing the company's strategy, challenging the assumptions of the company's strategy, and testing the strategy's validity. This framework comes across as more simplified than Ferreira & Otley's (2009) framework and arguably provides a less broad view of the issues surrounding PMS use and performance management. However, it places a greater emphasis with respect to the sequencing of activities that must be followed to develop, implement, use, and update these systems.

Keeping in mind the framework by Bourne et al. (2000) seems particularly fruitful here. Acknowledging the existence of different stages in the PMS implementation process seems appropriate, as the problems that might arise at each stage are usually different (Nudurupati, 2011). Let us now look at what has been said in the literature on PMS for each of these three phases.

2.4.1 Performance measurement system design

Some significant complications already cover the first phase of the design and development of the specific system. The proper conduct of this phase is usually considered essential (Neely, Gregory & Platts, 1995). In general, it is argued that the more the development and implementation of these tools come successfully to completion, the more companies tend to gradually see both financial and non-financial benefits (Gong & Ferreira, 2014; De Waal, Kourit, & Nijkamp, 2009),

provided that the system is well designed (Griffith & Neely, 2009; Braam & Nijssen, 2004). The way the system is designed is also relevant because it may have significant effects on how incentives are allocated; therefore, an incomplete PMS could generate feelings of inequality and injustice in the rewards system. In case of the incompleteness[4] of the design, individuals may feel that their own performance is not being objectively evaluated in comparison with other colleagues or, at any rate, generally feel that the evaluation indicators used are not truly representative of the commitment and effort expended in carrying out the processes for which they are responsible (Burney, Henley, & Widener, 2009). Managers could also perceive incompleteness as a problematic factor that discourages the use of the system, especially to the extent that it does not allow for precise evaluation of strategic performance and does not adequately support strategy management (Islam, Adler & Norhcott, 2018). In addition, the way the tool is designed affects, among other things, its effectiveness for strategic control and management and how it is used in the company by managers (Agostino & Arnaboldi, 2012; 2011; Moon & Fitzerald, 1996). For example, Artz, Homburg, & Rajab (2012) suggest that the alignment of the indicators chosen at the level of individual functions with the goals of the company and the perceived reliability in measurement positively influences the use of the PMS to support strategic decision-making processes and to hold individuals accountable. Or again, a study by Guenther & Heinicke (2019) shows evidence that a PMS with a sophisticated design may produce greater benefits when there is an interactive use of the system but may produce fewer benefits or even be harmful if the tools are used only for diagnostic purposes.

In order for a PMS to be defined as well-designed, the various contributions in the literature have emphasized that the tool should comprise performance measures and targets that have high strategic alignment, controllability, timeliness, and technical validity, and they should state how the measures are interrelated using cause-and-effect relationship (Pavan & D'Onza, 2013; Franco-Santos et al., 2012).

[4] Wouters & Widerom (2008) define incompleteness as "the inherent incompleteness of PMS in terms of the inability to reflect the various dimensions of operational performance and tradeoffs among these and therefore user involvement needs to be mobilized, both in terms of existing experience with quantification of performance, and also throughout the design and implementation process of new measures." (pp. 489)

As highlighted in the literature review by Franco-Santos et al. (2012), there are numerous studies that support the existence of different types of positive and desired benefits associated with a good design, including those of a non-financial nature. In particular, Franco-Santos et al. (2012) determined three categories of consequences related to the use of such systems, namely (I) people's behaviour, (II) organizational capability and (III) performance. Moving down in detail, the benefits identified are namely (I) increased team working performance, (II) reduced bonus allocation bias, (III) better strategic outcomes in terms of delivery, flexibility, and low cost, (V) better managerial performance, (VI) increased understanding of individuals regarding what is expected from them at work, (VII) increased strategic focus, (VIII) increased motivation, (IX) better support of managerial learning, and (X) better corporate control of subsidiaries,

On the other hand, Franco-Santos & Otley (2018) also point out the existence of unintended and sometimes adverse consequences associated with the use of PMS, and a substantial part of these are related precisely to the way the system is designed. Although, to date, there are fewer studies investigating unintentional outcomes than those investigating intentional ones (Franco-Santos & Otley, 2018), a number of rather unintentional consequences emerged from the review conducted by Franco-Santos & Otley (2018) on the subject, namely: (I) gaming that can sometimes be associated with the break of ethical norms, (II) information manipulation that can range from creative accounting to clear fraud, (III) selective attention in terms of what and when to measure, (IV) illusion of control, (V) relationships transformation, (VI) administrative and managerial overload, (VII) de-professionalization or movement away from the organization values, (VIII) decreased well-being and morale, (IX) reduced responsiveness and increased resistance to change, (X) stifled innovation, and (XI) perception of unfairness and inequalities. In particular, they claim that many of these issues may arise depending on the design and reliability of performance management systems, as "the more the 'assumed' reality about the state of goal-alignment and goal-uncertainty diverges from the 'real' state of affairs, the more the resultant system is likely to create perverse unintended consequences, leading to poor organizational outcomes."

Some authors have identified significant difficulties in the design phase related to choosing what to measure and what indicators should make up the PMS. Many consultants have cleverly proposed apparently revolutionary or at least fashionable solutions to companies' managers and contributed significantly to disseminating the BSC itself (Braam, Benders, and Heusinkveld,

2007). Still, although innovative, their proposals have sometimes proved unsuitable for the specific situations in which they were being introduced (McCunn, 1998).

PMS need considerable effort to be adapted to the company in which they are being introduced in order to deliver the desired outcomes (Neely & Bourne, 2000; Ferreira & Otley, 2009; Hoque, 2014). According to several scholars, the system should be composed only of indicators that are actually relevant to understand how the company is doing and to plan actions and decisions accordingly (Neely, Mills, Richard, Gregory, Bourne & Kennerly, 2000). In fact, the use of irrelevant indicators that do not provide insight into the actual strategic performance of the company is considered problematic, as well as an excess of selected indicators that, although seemingly relevant, could lead to confusion in management.

Adapting the tool to the needs of the company is often a rather complex process, mainly because the choice of indicators remains fundamentally subjective (Papalexandris, 2004), consequently risking creating the perception of unfairness and of favoritism in the granting of rewards when the system is used to incentivize individuals (Ittner, Larcker & Meyer, 2003). In addition, as Wouters & Sportel (2005) suggested, existing informal control and information systems significantly influence and shape the design and implementation of a new PMS. Therefore, the introduction of these tools could also become quite complex as the information is often scattered and not unified in an integrated process, thus requiring considerable effort in information retrieval and systematization.

Moreover, many studies report difficulties related to the design of the PMS in specific settings.

For example, Giovannoni & Maraghini (2013) argue that companies that base their success on creativity may have difficulties in identifying the best performance measures and translating them into a coherent set of targets. This element is also supported by Mettänen (2005), who analyzed the process of designing and implementing a PMS in an organization that does research, whose success is based on the creativity of its members and elements of a more qualitative nature. Even when the system is introduced in firms whose performance can be effectively measured using more quantitative indicators, it has been found that the design process is iterative and trial and error as new measures need to be tested to see if they are actually useful (Wouters & Wilderom, 2008). It is, therefore, clear that, depending on the type of company, there may be difficulties in identifying what should be measured, while on other occasions, it may be difficult even to establish shared and accepted indicators by all those involved in designing the PMS.

The evidence shows that even the company's size affects a specific tool's effective design, choice, and implementation approach. The size aspect with respect to the design, implementation, and use of PMS, has been recognized in general as absolutely relevant (Guenther & Heinicke, 2019), as evidenced by the numerous studies focusing on small companies (Heinicke, 2018; Sousa & Aspinwall, 2010; Brem, 2008; Branciari, 1996). Specifically, company size seems to be related to the level of sophistication achieved by the PMS, where as size increases, there will be a tendency to have an increasingly complex, holistic, and integrated PMS (Amir, 2014). Moreover, the introduction of advanced systems such as the BSC requires a significant amount of financial and human resources or a reliable information system (Taylor & Taylor, 2013; Garengo, Biazzo & Bititci, 2005; Bierbusse & Siesfeld, 1997), which small companies often do not have (Ghobadian and O'Regan, 2006; Neubauer et al., 2012). Since the balanced PMS usually adopts measures and methodologies for tracking strategy effectiveness and implementation progress (Maraghini & Riccaboni, 2019), the capability to effectively define a business strategy to be measured is fundamental. However, many small-medium companies are not in the habit of formulating and establishing their own strategy, creating another crucial hindering factor for the determination of the indicators to adopt (Hudson, Smart & Bourne, 2001). Excessive focus on short-term goals when formulating strategy, which is common in small companies, could also lead to the use of indicators that are not really meaningful and useful for managing business performance (Garengo, Biazzo & Bititci, 2005).

Another important hindering factor may be the absence of a reliable information system: the PMS should be connected to it and be based on valid data (Bourne et al., 2000; Cavalluzzo & Ittner, 2004). If the results given by the PMS are not well-founded, the decision-making process will be negatively affected. This issue is most easily encountered in small companies because they tend not to have a particularly advanced and reliable information system (Hudson et al., 2001).

Further problems not related to size depend on the type of individuals who take on the task of designing the system. For example, if the PMS is developed exclusively with a top-down logic by the top management, middle managers may find themselves entrusted with goals they are unable to influence or find themselves having irrelevant indicators for their specific organizational unit or function (Decoene & Bruggeman, 2006). Involving managers in the design and collective testing of the measures that should make up the system, however, may reduce this issue and encourage

the identification of indicators that are actually useful for each manager of the organizational unit (Wouters & Wilderom, 2008).

Lack of adequate knowledge, related to the absence of training or prior experience, with respect to the use of performance measurement tools, their structure, the possible indicators and the characteristics they should have, can also significantly affect design quality (Dilla & Steinbart, 2005). Sometimes the problem with designing the system can also be strictly computer skills related (Bourne et al., 2000). Experts in management accounting & control might have a good idea of how to articulate the system in terms of indicators and the elements or areas that should be monitored and controlled. However, it is not a given that these experts also have the I.T. skills to compose and articulate I.T. data into dashboards of indicators. Even tools such as the BSC are usually set up in the company through the use of computer tools and software, which is why Bourne et al. (2000) point out that one of the reasons for failure in the system design phase may also be related to the lack of the necessary computer skills. It can be assumed that this issue may diminish with the increasing level of computer literacy and the gradual integration of studies related to big data and coding into accounting courses (Griffin & Wright, 2015; Vasarhelyi, Kogan & Tuttle, 2015).

Finally, the lack of "fit" between the environment, the business strategy, the organizational culture, and what is being measured through the PMS is a critical problem (Melnyk et al., 2014; Jazayeri & Scapens, 2008), which can result from a bad design or a failure to update the system when needed (Franco-Santos et al., 2012; Hoque 2014). Nevertheless, designing a performance measurement system that perfectly fits a particular company remains a complex, if not impossible, operation (Wouters & Wilderom, 2008).

Precisely because of issues that arise in the design of PMS, there are numerous contributions in the literature aimed at providing a methodology to prevent or minimize difficulties and guide managers in the development of the system (Chalmeta, Palomero & Matilla, 2012; Sousa & Aspinwall, 2010; De Waal, 2007; Folan & Browne, 2005; Bourne et al., 2005; Hudson, Lean & Smart, 2001; Bourne et al., 1999; Neely et al., 1997). Some of these approaches are meant to be applied to companies operating in specific industries or possessing a certain size, while others have more general applicability. For example, Neely et al. (2000) developed and tested a process-based approach for designing a balanced performance measurement system like the BSC or the performance prism. According to them, their participatory methodology for developing PMSs can

be a very effective way to develop a robust and exploitable performance measurement system design process and should therefore help managers in the complex task of identifying the indicators to be used. Abernethy, Horne, Lillis, Malina & Selto (2005) proposed an approach for constructing causal performance maps for PMS development in companies that have expert knowledge workers performing complex processes, the results of which are qualitative in nature and, therefore, difficult to quantify. Their methodology could help overcome the problems associated with identifying quantifiable indicators in this type of context, facilitating the design process. Cocca & Alberti (2010) developed a framework specifically aimed at evaluating the design of SMEs' performance measurement systems to help companies identify problems and shortcomings in the tools in use and introduce corrections and changes if necessary. This approach should specifically facilitate SMEs in designing the system and evaluating its effectiveness, as more traditional approaches and models are often better suited for application in larger companies. Purbey, Mukherjee, & Bhar (2007) developed a framework to be applied to the health care sector, in which they categorize performance measures that are useful in the context in order to facilitate managers in the process of designing the PMS and deciding what to measure. This approach should facilitate the identification of indicators in the specific context of healthcare, given the absence of mainstream models specifically intended for this sector. Taticchi, Balachandran & Tonelli (2012) conducted a literature review on PMS and provided a framework composed of a series of guidelines to support managers in the development of the system. Finally, even Kaplan & Norton (1996) offered an approach for designing and implementing the BSC aimed at overcoming and preventing issues that may arise, such as difficulties in identifying the most useful indicators or choosing indicators that are accepted by all individuals.

2.4.2 Performance measurement system implementation

The second essential phase in the process of introducing a PMS outlined by Bourne et al. (2000) and Nudurupati et al. (2011) is the actual implementation of the new measures and tools.

The proper management of this phase appears essential to the success of the entire initiative. This is evidenced by a large number of studies specifically focused on this step (Wouters & Wilderom, 2008; Bourne et al., 2003a; Bourne et al., 2000).

If we focus specifically on this phase, the kinds of identifiable issues are generally more related to the individuals and organizational factors (Nudurupati et al., 2011; De Waal, 2003). Indeed, even in the presence of a theoretically well-designed system from a strictly technical

standpoint, both studies on change management and those related to performance measurement systems suggest that poor management of the implementation phase can block or slow down the adoption of the system by the individuals who compose the organization (Nudurupati et al., 2011; Bourne, 2003b).

Several studies have tried to understand both what are the drivers that facilitate or encourage implementation and the factors that hinder it (Beusch et al., 2021; Madsen & Stenheim, 2014; Munir, Baird & Perera, 2013; Farneti, 2009; Cavalluzzo & Itner, 2004; Bourne, 2005; De Waal, 2003; De Waal, 2002; Bourne et al., 2002; Kasurinen, 2002).

In the field of management accounting change, one of the most relevant contributions focused specifically on hindering and enabling factors is probably that of Kasurinen (2002). The author proposed a framework derived from the analysis of a case study on the implementation of a balanced scorecard to classify the factors that play a role in a management accounting change process and understand their effects, expanding on what was done in two earlier works by Cobb (1995) and Innes & Mitchell (1990). Some studies have used this framework to analyze the elements that favored or inhibited implementation (Munir, et al., 2013; Farneti, 2009).

Enabling factors, according to this framework, include *motivators*, *facilitators*, *catalysts*, *leaders*, and *momentum*. The first three are the only ones to compose what was the original framework of Innes & Mitchell (1990), while the last two have been recognized in the development of the framework proposed by Cobb et al. (1995).

To begin with, *motivators* are elements that influence change in a general manner. Some examples may be a high level of market competition and complexity, the stage of the product lifecycle, technology advancements, the rate of product innovation, or changes in the operating environment.

While not sufficient to produce change on their own, *facilitators* are believed to be conductive for management accounting change and often essential for its achievement. Some examples may be the type of knowledge and skills (e.g., accounting, computer) possessed in the company or the type and amount of resources available.

Catalysts are factors directly related to change, and their occurrence corresponds closely to the timing of change (Innes & Mitchell, 1990). Examples are major issues like deterioration in financial performance, loss of market share, major regulatory changes, the arrival of substitute products or new competitors, but also incentive elements such as the arrival of new managers and

subjects with skills previously unknown in the company. According to Innes & Mitchell (1990), both *motivators* and *catalysts* can foster change, but they are really effective only in the presence of *facilitators*.

What distinguishes *motivators* from *catalysts* is that the former can foster change in general (e.g., a very competitive market affected by rapid change in technologies and practices in use) while *catalysts* foster only specific types of change (e.g., the arrival of a manager who already has particular experience with PMS, the arrival of a new substitute product that necessitates a response from the company).

Leaders are individuals who act as *catalysts*, especially in the early stages of change processes, but prove to be essential supporters and sponsors of these projects also throughout the implementation phase (Cobb et al., 1995). This factor was probably recognized as essential also because a relevant part of the organizational change literature in those very years was increasingly preaching the importance of leadership as a central factor in the success of change processes (Bourne et al., 2002; Kotter, 1995;1996; Beer et al., 1990; Nadler & Tushman, 1990). This factor remains central in several subsequent studies that emphasize that leadership, provided it is committed to the project, has the ability to influence and motivate people toward adopting and using the system (Bianchi & Rivenbank, 2013; Taylor & Taylor, 2013; Franco & Bourne, 2003).

The *momentum* of change is another often recurring term in the organizational change literature. It expresses the fact that the sense of the progress of change and the gradual realization of something worthwhile drives people to pursue the project implementation. The literature on organizational change emphasizes how important it is not to lose this *momentum*. For this reason, it is generally suggested not to stop at the first positive results and to insist on implementing the change before people lose focus and energy toward the project (Hayes, 2018; Kotter, 2012).

With regard to hindering factors for management accounting change processes, Kasurinen's (2002) framework expands on what was suggested by Cobb et al. (1995) by classifying them into three different types, namely: *confusers*, *frustrators*, and *delayers*.

Confusers are factors that disrupt the process of change. Some examples might be the abandonment of one of the main sponsors or leaders of the change, misunderstandings with respect to the implications or usefulness of the tool in the company, and disagreement with respect to what should be the goals of the change.

Frustrators are factors that suppress the change attempt. In this category falls an organizational culture that does not support the tool's implementation or organizational changes in general and the resistance from managers who fear that the tool may change power distribution.

Finally, *delayers* are temporary and rather technical hindering factors and have a decisive influence both in the early stages of project design and in the proper implementation phase. Examples include the absence of a reliable information system and the absence of a formulated and clear strategy.

Several are the studies that, using case study analysis or questionnaire administration, have tried to identify specific issues or factors that plague the implementation of PMS (Franco-Santos et al., 2012; Bourne, 2005; Bourne et al., 2002). These works often do not refer to Kasurinen's (2002) framework, although the factors identified can fit into the author's classification. Indeed, some studies from disparate fields of research have attempted to identify the different factors that positively or negatively influence the introduction of PMS (e.g., Radnor et al., 2003; Franco & Bourne, 2003; De Waal, 2003) or have focused only on individual elements in order to understand better their effects on implementation dynamics (e.g. Bourne et al., 2002; Cavalluzzo & Itner, 2004; Bourne, 2005).

One of the most reported enabling factors for the success of this kind of initiative is probably management commitment (Beusch, Frisk, Rosén & Dilla, 2022; Bourne et al., 2002; Franco & Bourne, 2003; Cavaluzzo & Ittner, 2004; Bourne, 2005; Chen et al., 2006; Assiri, Zairi & Eid, 2006; Wickramasinghe et al., 2007), while its absence is generally regarded as one of the most common reasons for failure (Bourne et al., 2003; Bourne et al., 2002). The commitment may be present or already absent in the early stages of the implementation project, and it may be kept or gradually lost during the implementation and use of the system (Bourne, 2005; Bourne et al., 2002). The lack of perceived benefits during the implementation phase (Bourne, 2005; Speckbacher et al., 2003; De Waal, 2003) together with the time and effort required to develop and introduce the system, which can be consistent, are some of the factors that can produce a failure of the project (Bourne et al., 2003). Consequently, it cannot be ruled out that as time progresses, other seemingly more stringent priorities emerge, shifting the attention of top management to other issues and processes to be managed (Bourne, 2005). The choice of targets and objectives that are not effectively shared by leadership is another element that could negatively influence commitment towards using the tool and achieving assigned targets (Webb, 2004). As

reported by Webb (2004), the low attractiveness of the given goals can not only generate a loss of commitment but even produce real forms of resistance toward the control tool.

Another factor that has already been presented as relevant in the design phase but has also been reported as crucial in the implementation phase regards the possession of good I.T. and management accounting skills (Bourne et al., 2000). The system can be developed by a limited number of people who possess the necessary knowledge within the company or with the support of a consultant. Still, for it to become widely and regularly used by managers in different areas of the company, the relevant skills and expertise must be widely held also by the users.

Without the necessary knowledge, individuals may find it hard to use the system and interpret the data. For this reason, it has been pointed out that the administration of training specifically geared toward the use of performance measurement systems can also foster adoption and increase the likelihood of successful operation (Cavalluzzo & Itner, 2004). Failure to administer specific training could have negative repercussions not only on people's actual ability to use the tool but also on their understanding of the implications and benefits related to the tool, generating confusion and frustration (Munir, Baird & Perera, 2013).

Another fairly recurrent enabling element involves sponsorship, active support, and participation in the implementation process by those with senior positions in the company (Argyris & Kaplan, 1994).

In particular, it was found that the use of the PMS by top management to evaluate the performance of individuals and to hold them accountable for achieving certain targets fosters their interest in adopting and regularly using the tool (Cavalluzzo & Itner, 2004).

Another frequently reported enabling factor in the literature concerns people's involvement in the process. This has been reported already in the normative process proposed by Kaplan & Norton (1996) in order to facilitate the identification of measures and dashboards more in line with the needs of the company. Involvement seems to produce positive effects toward generating commitment and reducing resistance to change (Tayler, 2010). In addition, involvement fosters a feeling of transparency in the management of the implementation process, encouraging employees to take a positive attitude toward the tool (Wouters & Wilderom, 2008).

In general, many studies report that, for a project to be successful, an organizational culture consistent with the tool being used must be developed in the company (Carlucci et al., 2015; Jazayeri & Scapens, 2008; Järvenpää, 2007; Radnor & Lovell, 2003). The use of new metrics

requires a change in the organizational culture, and the development of new types of mindsets on the part of those managers who will have to use it on a regular basis is considered an essential element. This change is most significant, especially when the newly introduced tool includes important new elements, such as the introduction for the first time of non-financial measures or the use of substantially different measures for management accountability (Bititci et al., 2006). Some studies also report how a culture oriented toward organizational learning, performance improvement, and entrepreneurship significantly enhances the success of PMS implementation initiatives (Taylor & Taylor, 2014; 2013; De Waal, 2003; Franco & Bourne,2003). A quality-oriented culture could also support the introduction of a PMS to the extent that it allows for more effective monitoring of compliance with desired quality standards in service and product offerings (Taylor & Taylor, 2013).

As reported by Bititci et al. (2006), it is also the system itself that influences, as it is developed, introduced, and used, the way managers reason and behave with their employees. In other words, this study suggests that cultural change is something that occurs initially in order to create the foundation to facilitate the implementation of certain tools, while later, it occurs because of the influence the system itself has on people in the company once it is being introduced (Franco-Santos et al., 2012). They suggest that in the early stages of the project, more authoritarian management culture and style seem to favor implementation. Nevertheless, if the system is successfully phased in, a more participatory and consultative leadership style and a more goal-oriented culture should prevail (Bititci et al., 2006).

The perception of benefits associated with the system, in addition to being an essential factor already early in the design phase by those involved in the project, is also an important factor in the implementation phase. The perception of advantages associated with the change should be shared by those employees who will be affected by the new system (De Waal, 2003). This is why an effective communication strategy and dialogue among managers of different levels could reduce some situations of confusion and resistance (Beusch et al., 2021; Sharma, B., & Gadenne, 2011; Charan, 2008; Umashev & Willett, 2008; Assiri et al., 2006), as well as the creation of situations for the participation of employees and managers of specific organizational units in the design and implementation of the system (Groen, 2018; Madsen & Stenheim, 2014;).

Concerning the hindering factors, one that may arise during the implementation and use of the PMS is resistance to change (Macchia, 2021). Many case studies on PMS implementation and

management accounting change have reported resistance to change as a factor that can slow down or even lead to project failure (Scapens and Robert, 1993; Vaivio,1995;1999a;b; Bourne et al., 2003b; Tuomela, 2005; Lueg & Vu, 2015). One type of resistance to change quite specific to this type of project is the so-called resistance to measurement (Bourne et al., 2000; Jones, & Schilling, 2000), reported in the literature even before the development of modern holistic PMS (Meekings, 1995; Ansoff, 1988; Deming, 1986).

This type of resistance might occur, for example, when performance measurement linked to the individual or organizational unit for which an individual is responsible is perceived as a threat to the autonomy or power held in the company (Carlucci et al., 2015).

Other instances of resistance could be related to strictly cultural aspects. Indeed, while, as mentioned just before, cultural change or the presence of an organizational culture already oriented toward the adoption and use of these tools is reported as an enabling factor (Mendibil & MacBryde, 2006), on the other hand, a culture that is not very oriented toward change or the use of these tools could create a barrier (Madsen & Stenheim, 2014; Franco & Bourne, 2003; Bititci et al., 2004). If a company has already been in business for several years, it is likely that individuals have already developed a certain mindset and have become accustomed to using specific tools (Kotter, 1995). Using tools that require new knowledge, in addition to requiring some learning effort, may require a different mindset that not everyone may be able to embrace. The same kind of culture that has settled over the years may have fostered the creation of an organizational structure and a set of relationships between different organizational units that may not be conducive to the implementation of integrated tools (Kotter, 1996). In this case, resistance could be generated when the organization adopts holistic tools requiring greater integration of processes and terminology among different units (Scapens & Roberts, 1993). Finally, the organizational culture that underpins the company's routine and performance management & measurement activities could be challenged when the company faces a crisis (Busco, Riccaboni, & Scapens, 2006). In such cases where the organizational culture is challenged by the conditions the company goes through, it might be easier to introduce tools that involve changing the management mindset and routine of business activities.

In general, as the change management literature also suggests (Bourne et al., 2003b), if there is a perception that the introduction of a certain tool will bring disadvantages to the individual or the organization, there is likely to be some form of resistance. Beyond the fear of the shifting

balance of power, some of these perceived disadvantages might be related to the perception that the system will increase the organization's rigidity (Garengo et al., 2005), require too much effort or cost to be introduced compared to the perceived advantages (Sgrò et al., 2020; De Waal & Counet, 2009; Hudson et al., 2001), create distrust in the information system from which the PMS collects information (Taylor & Taylor, 2014; De Waal, 2003; 2002) and lead to disagreement and perception of inadequacy or unfairness of the targets/indicators chosen (Sharma et al., 2016; Biron et al.,2011; Franco & Bourne, 2003).

2.4.3 Performance measurement system Use

With reference to the last phase of the use of PMS in the framework proposed by Bourne et al. (2000), we only very briefly review the most significant studies, being the implementation and not the use, the focus of this thesis. Most of the research has sought to understand what effects are associated with the employment of performance measurement tools and how individuals use these tools.

Yet, the use that is made of the system is often closely related to what happened in the earlier stages of design than implementation. The manner in which the system is designed, the characteristics of the system, and the degree to which the system is implemented and disseminated within the organization also ultimately affect the use that is made of it and the effects it produces (Franco-Santos et al., 2012; Wouters & Wilderom, 2008; Bourne et al., 2003).

As we have already said, early studies on the subject already reported the existence of generally visible benefits in terms of better intellectual capital mobilization (Chiucchi, 2013a;b) and higher organizational and financial performance associated with the use of a well-designed PMS (Franco & Bourne, 2004; Bourne et al., 1999), but also the existence of some contingent factors (e.g., absence of reliable information systems or companies whose success depend on hardly quantifiable factors) that could limit these benefits or even generate disadvantages (Neely et al., 2005; Hudson et al., 2001; Abernethy et al., 2004). To shed more light on this topic, Bourne, Kennerly & Franco-Santos (2005) analyzed multiple case studies within the same organization and compared the use of PMS by high-performing organizational units with average-performing ones. They found that units that achieved higher levels of performance were characterized by unit managers' greater understanding of performance drivers and their management, more sophisticated use of available measures in monitoring activities, and more "interactive" (Simons, 1991) use of tools.

As mentioned previously, Franco-Santos et al. (2012) & Franco-Santos & Otley (2018) provide an extensive collection of the positive or negative consequences reported in the literature and associated with the use of PMS[5].

In relation to the use of PMS, many studies, especially in the field of management accounting, sought to understand how management employs these tools through the use of Simons' (1995) levers of the control framework and its developments (Tessier & Otley, 2012).For example, Tuomela (2005) applied the framework to investigate the use of a system for strategic control of a firm, showing that such a system could be used both diagnostically and interactively, but its use had implications for belief control and boundary control. The study highlighted that interactive use of the system may allow for more evident improvement in company performance and greater commitment to assigned targets but may be quite time-consuming when collecting the data and when interactively discussing the results. Concerning belief control, Tuomela (2005) showed that communications about this system helped foster customer focus and understanding of the importance of having a competent staff. Concerning boundary control, he showed that addressing key customers and "accepted" suppliers can give a sense of certain boundaries of action.

What emerges in general from the studies regarding the use of performance measurement systems is that while it is undisputed that their use can bring benefits, the relationship is not straightforward, and it would be overly simplistic to attribute a priori advantages to the use of these systems (Franco-Santos & Otley, 2018; Franco-Santos et al., 2012; Bourne et al., 2005). These benefits depend on how the system is designated, how and how much it is used, and the actual appropriateness of the tool to what are the measurement and control needs.

[5] Please refer to the paragraph relating to the design of PMS for more detail on the consequences identified.

3. Intersecting change management theories with the PMS implementation literature

3.1 Chapter Summary

The following chapter is devoted to an in-depth examination of the main theoretical contributions in the field of change management in order to understand whether these theories may also have relevance in the field of PMS implementation to explain why certain initiatives succeed or fail. The second paragraph is specifically devoted to examining the history of this line of study and to analyzing the main change management models. This paragraph shows the evolution that these models have undergone over the years, the main types of frameworks, their features, and the topics most considered. The third paragraph concerns the analysis of the change management model developed by Stouten et al. (2018), which we take as the reference framework for this thesis work. We chose this framework because, while it has important similarities with some distinguished models developed previously, unlike them, it is based solely on scientific evidence, is relatively recent, and is published in a high-ranking scientific journal. From the analysis of this model, in this paragraph, we proceed to identify what factors seem to facilitate or inhibit organizational change initiatives. The fourth and final paragraph of this chapter aims to compare the factors identified through the analysis of Stouten et al. (2018) framework with what has been stated in the literature related to the implementation of performance measurement systems. In this way, it is also possible to check which factors deemed important in the change management literature are also confirmed as relevant in the research field of PMS. Those factors that seem to be less considered in the PMS literature will be explored in the case study addressed in the following chapters.

3.2 Brief history and introduction to change management models

3.2.1 Organizational change models

Over the past forty years, many prescriptive change models have been proposed to support the successful implementation of organizational change. Typically, the studies of change management do not focus on one specific type of change because, as their focus is on the human factor and not on elements of a strictly technical nature, they usually assume the replicability of the findings on

which they are based to different types of organizational changes (Rosenbaum et al., 2018). Generally, the organizational changes considered by this literature involve the introduction of new technologies, tools, methodologies, activities, and processes, as well as changes in tasks, roles, organizational culture, and strategy (Hayes, 2022). Some examples of the most addressed topics and strategies for change in the change management literature are the development of the need for change (Hayes, 2022; Armenakis & Bedaian, 1999), the communication of the reasons and implications of change (Whelan-Berry & Somerville, 2010), the analysis of *change readiness* (Rafferty et al., 2013; Boardia, 2011; Armenakis, Harris, & Mossholder, 1993), the administration of the required training (Hiatt, 2006), the management of resistance (Pardo Del Val,& Martínez Fuentes, 2003), and the creation of commitment to change (Bartunek et al., 2006; Choi, 2011).

Typically, proposals in this area come from scholars in organization development and organization behavior (Van De Ven & Poole, 1995), but there is also no shortage of proposals coming from scholars in strategic management (Judson, 1991) & operations management (Bourne et al., 2003b; Hunsucker & Loos, 1989).

Usually, the prescriptive organizational change models fall into the category of teleological models of change identified by Van De Ven & Poole (1995), as they are based on the assumption that firms change in order to pursue a purpose and that the process of change can initiate when dissatisfaction with the status quo is generated.

However, the other categories of change models classified by Van De Ven & Poole (1995), namely life-cycle, evolutionary & dialectical, respectively, also find their function in the perspective of change management, as their representation of change is also believed to give suggestions as to what should happen for change to occur successfully. For example, life-cycle models like the ones offered by Greiner (1998) and Miller & Friesen (1984) are believed to be useful tools for predicting, anticipating, and, consequently, managing the difficulties and organizational changes that the company will face during its lifetime.

Continuing on the theme of prescriptive organizational change models, according to many scholars, the first change management model is the "changing as three steps" (Burnes & Bargal, 2017; Cummings, Bridgman, Brown, 2016; Rosenbaum et al., 2018) model proposed by Lewin (1947, 1951), who is considered, not surprisingly, as one of the founders of the disciplines of organization development and change management. This framework divided the change process into three phases, namely unfreezing, moving, and freezing. It did not offer much guidance for

managing change, and its approach was not prescriptive: the main goal was to explain how change occurs within individuals who belong to groups. Nevertheless, the scholar suggested that it could also be used to understand how change happens within organizations and to favor organizational change and performance improvement (Lewin,1947). A particular feature of this model is the emphasis placed on the sustainability of change. The model possesses a refreezing phase because Lewin argued that, at the behavioral level, there is a natural tendency on the part of people to revert to old habits and that change can be considered achieved when the new condition is perceived as the status quo or "norm" (Hayes, 2022; Buchanan et al., 2005). This model was developed along with his studies about force field analysis, in which the author focused much of his attention on the drivers of resistance to change and the forces that support it. Through his force field analysis theory, he suggested that in order to successfully introduce a mutation, it is better to decrease the forces that resist change instead of increasing the forces that push for it. This is because, at the psychological level, he had noticed that in the case of situations of change due to an increase in "push" forces, there was a significant increase in anxiety levels in individuals as well as a greater tendency to return toward old habits as soon as these "push" forces ceased. For example, in the case of a manager who has introduced change with an authoritarian style, there may be a greater risk, as soon as this manager turns his attention away from the project or leaves the company altogether, of a return to the old habits by employees (Hayes, 2022).

To this day, Lewin's theories remain quite widespread, especially in consulting and among change practitioners, being quite simple to explain (Cameron & Green, 2019) and having laid the groundwork for a number of subsequent models. The model has received much criticism over the years (Rosenbaum, 2018), calling it outdated, inadequate to support managers in managing organizational change, and surpassed in terms of research (Weick & Quinn, 1999). However, many relatively recent papers reaffirm its importance and defend its applicability even in the modern context (Burnes & Bargal, 2017; Burnes, 2004; Weick & Quinn, 1999), where companies need to change very frequently and quickly.

The early expansions of Lewin's model were proposed precisely for consulting purposes. These developments were, in fact, offered by consulting researchers who, in the tradition of Lewin (1946), developed their proposals by adopting the action research approach. Some examples include the models from Lippitt et al. (1958), Kolb & Frohman (1970), and Bullock & Batten (1985).

These models basically augmented the steps of Lewin's model and made it more detailed, including suggestions on how to actively manage organizational change. Since these works originated with the idea that change had to be carried out with the support of a facilitator or consultant, called a change agent, these models take into account the presence of this subject. In figure I, it is possible to see an example of these developments by looking at how Lippitt et al. (1958) expanded Lewin's model.

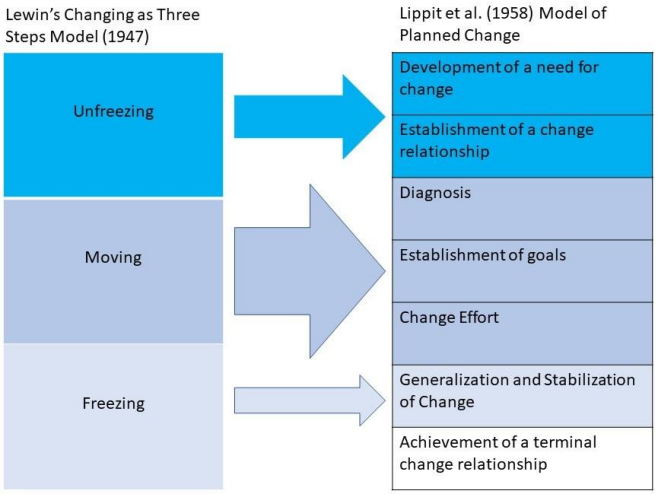

Figure I: The expansion of Lewin's model (1947) made by Lippitt et al. (1958)

The new steps involve, among other things, diagnosing existing problems to be solved and opportunities to be harvested by the client organization, building a relationship between the client organization and the change agent, and closing the relationship with the consultant.

Another classic example of the evolution of Lewin's model is then offered by Schein (1996), who claims to have based much of his work related to organizational culture change (Schein, 2010; 1999) on what Lewin did. The main difference with Lewin's original work is that Schein identified some subprocesses inside the three phases of change and consequently gave much more detail on how changes should be implemented. The first phase, the *freezing* step, is here characterized by three processes:

- Disconfirmation
- Induction of guilt or survival anxiety
- Creation of psychological safety or overcoming of learning anxiety.

According to Schein (1996), disconfirmation is the first process and begins when a person feels frustrated or dissatisfied with the status quo. If the individual realizes and accepts the existence of issues with the current situation, it is possible to create a motivation to change and start the induction of the guilt or survival anxiety process. The second step can, therefore, start only after the person has accepted the disconfirming information: the more the subject has accepted and gained conscience about the disconfirming data, the higher will be the anxiety about survival. However, disconfirmation and survival anxiety may be countered by learning anxiety (Schein, 1996). The person may react defensively and refuse to develop an awareness of the need for change because that would imply him accepting that something is not perfect, with a possible repercussion on individual self-esteem. Moreover, accepting the existence of a problem may imply the necessity to acquire new knowledge and, more in general, an effort. Therefore, he argues that it is fundamental to create, for the potential learner, a good level of "psychological safety." The third process is specifically about that. Since motivation is not enough, Schein (1996) asserts that the change agent must employ different tactics with the aim of producing psychological safety in all the people impacted by an organizational transformation.

The *moving* phase is composed of the cognitive redefinition and of one of two possible processes, namely (I) Imitation and positive or defensive identification with a role model and (II) Scanning. Cognitive redefinition is about redefining a believed concept or modifying evaluation standards with the new information received. The acquisition of new information can happen in two ways. One is through a dialogue with a person that has a different point of view and who becomes the role model to be imitated or to identify with. The other one happens when a person is highly motivated to change due to a high level of survival anxiety but has no one to exchange opinions with. In this case, the change target scans the environment, "travels," and interacts with others looking for new information with the aim of solving the issues that generated the anxiety of survival.

Schein (1996) suggests that the *refreezing* phase should be about changing the behavior in a congruent way with the purpose of solving the identified problem. This last phase may occur more easily if the person has searched for new information in autonomy due to the freedom of choosing the solution. Imitating or identifying with a role model, found in the *moving* phase, can make adapting to change harder because the person may be forced to adopt, as a solution, a behavior that is too distant or different from the previous one. This revision of Lewin's work might better explain

how change happens in individuals. However, as Lewin's model, it is not merely thought for companies but represents instead how change happens for a person or a group of people.

Like Lewin's approach, later prescriptive models of change often adopted a linear or sequential view of the change process, even when they did not explicitly refer to his model (Stouten et al., 2018; Rosenbaum, 2018).

Before moving to the most recent models, it is worth mentioning the "Change Equation" because it emerged as one of the most popular contributions to change management, at least in the practitioners' field. David Gleicher originally formulated it in the 60s while working at the international management consulting firm "Arthur D. Little" (Cady, Jacobs, Koller, & Spalding, 2014), and it was precisely thought to be used to understand what are the barriers that stop change and consequently help managers identify how to favor acceptance. Even though the original formulation is attributed to Gleicher, it made its first official appearance in a paper written by Beckhard (1975). It was subsequently reprised by Beckhard and Harris (1987) in their change model and expanded and revised by Dannemiller and Jacobs (1992). Curiously, in the updated version of their change model, Beckhard and Harris (1987) don't attribute the formula's origin to Gleicher anymore. The change equation, which is

$C = A \times B \times D > X$

aims to demonstrate that organizational change (C) happens only when the dissatisfaction with the status quo (A) multiplied by the desired clear state (B) and practical steps to the desired state (D) is higher than the cost of change. If only one of the three between A, B or D is near zero, the change project will probably fail because resistance to change won't be overcome. Although the authors do not explain how to exactly calculate the elements of the formula, the change equation is a very simple tool that, according to these authors, can help assess approximately the odds of success of a change process.

Compared to the old ones, the models from the 1980s onward would begin to increase the variables considered, increasing the focus on managerial and organizational elements that were becoming more widely known, such as leadership, strategic change, total quality management, lean organization, and business process reengineering.

The theme of leadership and its centrality to the success of change projects will become increasingly evident with models such as the ones from Beckhard & Harris (1987), Beer et al. (1990), Kanter et al. (1992), Kotter (2012, 1996) and Lucke (2003).

Especially Kotter's (1996) model has become, since the second half of the 1990s, one of the most known leadership-based approaches to change, and it is still extremely popular among practitioners. Kotter is a Harvard emeritus professor who presented an eight-step model in his work "Leading Change", a book that was particularly endorsed by Time Magazine, which defined it in 2012 as one of the 25th most influential business management books along with other extremely famous works in both academic and management circles (e.g., Senge, 1990; Porter, 1980), attesting to its widespread use among managers. Kotter (1996) identified the eight most common errors made by businesses when implementing major organizational changes and consequently developed the steps of his model in order to avoid them specifically. The eight most common errors, according to Kotter (1995), are

- Not establishing a great enough sense of urgency
- Not creating a powerful enough guiding coalition
- Lacking a vision
- Undercommunicating the vision by a factor of ten
- Not removing obstacles to the new vision
- Not systematically planning for and creating short-term wins
- Declaring victory too soon
- Not anchoring changes in the corporation's culture.

With reference to the recent models like Kotter's (2012, 1996), leadership is generally believed to be central to the development and communication of vision and the generation of motivation and commitment to change in individuals belonging to the company.

Table 1 below compares the steps, stages, or approaches of leadership-based models. As we can see, there are often some similarities between these models.

Beckhard & Harris (1987)	Beer et al. (1990)	Kanter et al. (1992)	Kotter (1996, 2012)	Luecke (2003)
Determination of the degree of choice about whether to change and establishment of what needs to be changed	Mobilization of commitment to change through joint diagnosis of business problems	Analysis of the organization and its need of change	Establishment of a sense of urgency	Mobilization of energy and commitment through joint identification of business problems and their solutions
Definition of goals and vision of the desired end state compared to the present state	Development of a shared vision on how to organize and manage for competitiveness	Creation of a shared vision and a common direction	Creation of a guiding coalition	Development of a shared vision of how to organise and

				manage for competitiveness
Determination and planning of a strategy for change	Fostering consensus for the new vision and competence to enact it	Separation from the past	Development of a vision and a strategy	Identification of the leadership
Management and reduction of resistances during the transition state and reviewing the effort.	Spread of revitalization to all departments without pushing it from the top	Creation of a strong sense of urgency	Communication of a change vision	Focus on results, not on activities
	Institutionalizing revitalization through formal policies, systems, and structures	Support of the change by a strong leader role	Empowerment of employees for broad-based action	Start of the change at the periphery, then to the other units without pushing it from the top
	Monitoring and adjusting strategies in response to problems in the revitalization	Alignment of a political sponsorship	Generating short-term wins	Institutionalization of success through formal policies, systems, and structures
		Development of an implementation plan	Consolidating gains and producing more change	Monitoring and adjusting strategies in response to problems in the change process
		Development of enabling structures	Anchoring new approaches in the culture	
		Honest communication of the change and involvement of people		
		Reinforcement and institutionalization of the change		

Table 1: Comparison of the most popular and modern change management models

Although most of these models offer a linear and sequential process for implementing change, other authors prefer to take a nonlinear, emergent, and processual approach while still providing methodologies to facilitate the organizational transition. Some examples are Dawson's (2019) processual approach or the ADKAR (Hiatt, 2006), which indicates a series of requirements to be met in order for change to take place effectively. Other significant differences in these theoretical methods for implementing change concern the approach that characterizes them: some prefer a top-down process, others a bottom-up one (Rosenbaum et al., 2018), some prefer a focalization on

the individuals that compose the organization, while others on financial and organizational variables (Beer & Nohria, 2000).

The main criticisms of prescriptive change methodologies are related to the fact that their inventors did not provide scientific evidence to support their thesis on how change managers should deal with organizational transformations (Stouten et al., 2018), even when academics proposed these models. For example, even Kotter's model is not based on any scientific evidence but exclusively on the author's experiences (Hughes, 2016; Appelbaum et al., 2012).

This is probably because, although some of these models were developed by distinguished academics, these individuals also operated as business consultants (e.g., Beer, Eisenstat & Spector, 1990; Kanter et al., 1992; Kotter, 1996; 2012). Furthermore, some of the most famous models are developed by pure consultants (see Judson, 1991; Hiatt, 2006). Therefore, the works published by these authors are addressed exclusively to practitioners and not to researchers, adopting, as experts in the field, a prescriptive and normative approach without providing great evidence on the validity of their claims.

Nevertheless, as we will see in section 3.3, Stouten et al. (2018) examined five of the most known change management models, including Kotter's. They demonstrated that several studies conducted by other researchers support a fair number of the prescriptions provided. In fact, although their framework is based solely on scientific evidence, it still has many similarities with other models.

Finally, as also pointed out by Stouten et al. (2018), although the content of the change plays an important role in the success or failure dynamics of the process, there is a dearth of organizational change studies that focus on specific kinds of changes. Therefore, very few

studies on organizational change management and organization development studies focus on the change content, and no empirical "organizational change" studies focus specifically on implementing performance measurement systems.

3.2.2 Change models focusing on individuals

Within the literature on change management models are often considered individual transition models (Hayes, 2022; Cameron & Green, 2019), which provide, on the one hand, a representation of the inner and emotional states faced during a major transition and, on the other hand, advice on how to facilitate this transition by reducing or preventing the most difficult states. Experts in the field of psychology generally developed these models. Their origin is considered different from

prescriptive organizational change models and can be found specifically in work done by Kübler-Ross (1969). Although the model proposed by Kübler-Ross (1969) was designed to represent the emotional stages that people go through in the processing of grief or serious illness, this model has also found extensive application in the field of organizational change management (Hayes, 2022; Cameron & Green, 2019) since radical organizational transformations require, as, in these situations, the letting go of the past condition and the acceptance of the new reality, the facing of a new situation characterized by new difficulties and a significant change in habits and behaviors (Bridges, 1986). In particular, the Kübler-Ross model change curve is composed of five emotional conditions that are namely, shock & denial, anger, bargaining, depression, acceptation. The curve (figure II) represents how the mood and energy trend of individuals swing over time when experiencing the five different phases of grief.

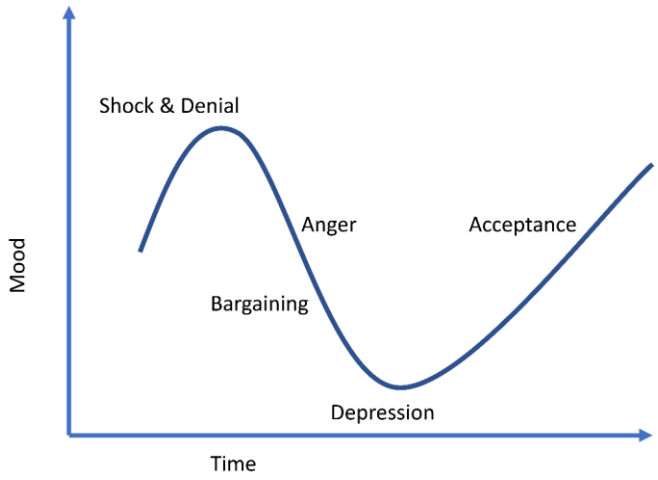

Figure II: Kübler-Ross's change curve

Kübler-Ross's (1969) model was then also taken up, expanded, and adapted to be applied specifically to the business reality (Hayes, 2022; Conner & Patterson, 1982; Parker & Lewis, 1981; Adams, Hayes & Hopson, 1976).

Figure III provides an overview of how the Kübler-Ross model was modified by Adams et al. (1976) and Paker & Lewis (1981) to be applied within organizations.

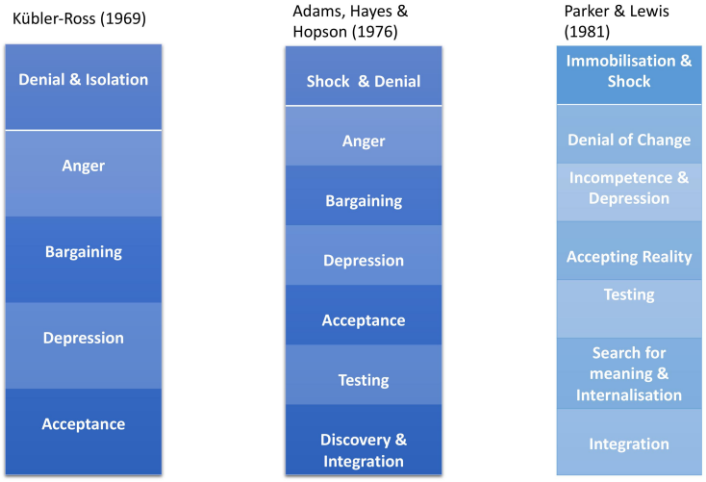

Figure III: Comparison of the models of Kübler-Ross (1969), Adams, Hayes & Hopson (1976), and Parker & Lewis (1981).

3.2.3 Diagnostic change models

Finally, the causal and diagnostic models of change are another kind of change management model. Their function is to facilitate diagnosis in change processes but also to provide a framework for explaining how and why changes occur and what organizational variables they impact. Typical examples are the Weisbord model (Weisbord, 1976), the 7S model (Waterman, Peters & Philips, 1980), the congruence model (Nadler & Tushman, 1997), and the causal model of performance and change (Burke & Litwin, 1992). While the first two had more "operational" use from the outset, the last two have also been used in research because they provide a holistic view of how change occurs and, ultimately, of how the occurrence of changes in proposed organizational variables and the external environment impacts firm performance.

In order to give an idea of how these models work and how they are used, let us take Burke & Litwin's (1992) model as an example.

Burke and Litwin's (1992) model is actually quite representative, as it was developed to extend and improve antecedent models, such as the 7S model, and has been widely used by practitioners. For instance, it was used within the BBC during a period of great transformation during the 1990s (Felix, 2000).

The two authors developed this causal model of organizational performance and change to guide the production of organizational diagnosis, which, as we have seen, is the starting point of

many change management approaches and to better explain the dynamics of organizational change. If we look at figure IV, we can see that this framework represents a series of connected organizational variables.

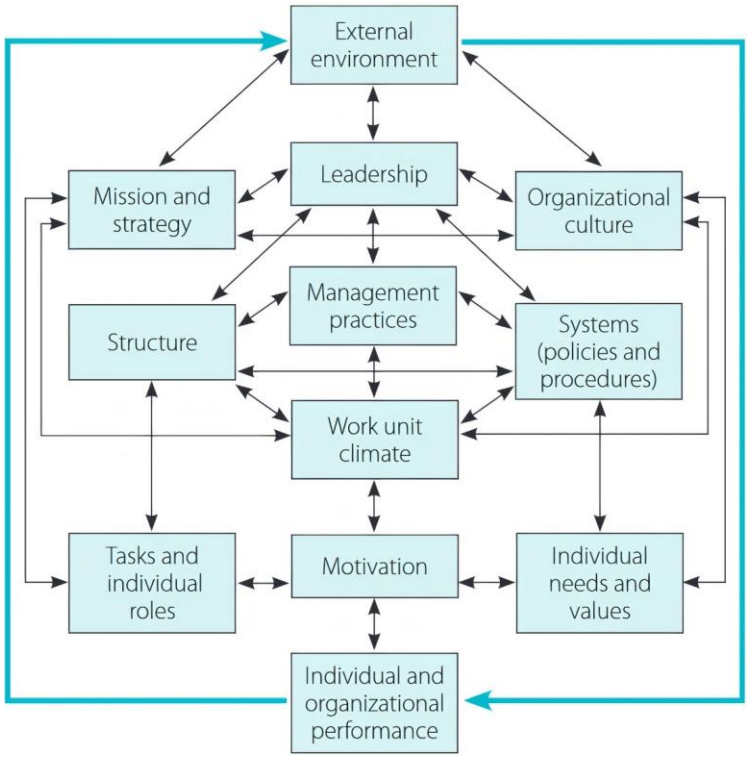

Figure IV: Burke & Litwin causal model of organizational performance and change

Source: Burke, W., & Litwin, G. 1992. A causal model of organizational performance and change, Journal of Management, 18, 523–545.

According to them, a change in one of the organizational variables that compose the model implies a change or an effect also in the others. In addition to these organizational variables, however, it is noted that the external environment can also be found represented within the framework, unlike other models such as the 7S model. This is because the authors believe that companies are open systems and, therefore, must adapt to changes that occur in the industry in which they operate (Bertini, 1990). However, as can be seen from the direction the arrows take, it is also the company itself that has the ability to influence what happens in its operating

environment. The scholars believe that organizational transformations arise mainly because of changes in the environment and not because of internal factors or leadership's initiative. Although they acknowledge that leaders have a fundamental role in the success of organizational changes, they assert that organizational mutations occur mainly because of external factors. The factors included in their model are divided into two categories. There are transformational factors in which "alteration is likely caused by interaction with environmental forces and will require entirely a new behavior sets from organizational members" (Burke & Litwinn, 1992). There are transactional factors in which changes are achieved through relatively short-term reciprocity among individuals and working groups. The transformational factors are the *external environment, leadership, mission and strategy, and organizational culture*. The transactional factors *are management practices, structure, systems, work unit climate, motivation, individual needs and values, tasks, and individuals' skills*.

One significant difference between the two is that transformational factors can produce transformational and radical changes, while the latter are likely to produce less radical and more incremental.

3.3 Introduction to the framework by Stouten, De Cremer & Rosseau (2018)

As mentioned in the introduction, this research thesis aims to conduct an exploratory study to provide empirical evidence that supports or denies the importance of elements deemed essential by change management theories. This could help us learn more about how and why certain change and performance measurement projects fail while others succeed, expanding on what has already been said about the factors that hinder and enable the implementation of management accounting tools and PMS by Innes et al. (1990), Cobb et al. (1995), and Kasurinen (2002).

The main reference of this work comes from Stouten et al. (2018). The authors provide an extensive review of the literature related to change management, seeking to understand whether the prescriptions and approaches suggested by the most popular change management models are actually supported by the scientific literature as well. Their review strongly supports only some of the claims made in these models, stating that some of the prescriptions are not or are only partially confirmed by what the research suggests. Therefore, at the conclusion of their paper, they offer a framework consisting of 10 prescriptions or steps based exclusively on what was supported by scientific evidence.

This latter framework is particularly significant for this thesis because it's from there that we extrapolated several critical success factors widely discussed in the organizational change research field.

We proceed below to analyze Stouten et al., (2018) framework and present the relative critical success factors.

These critical success factors will then be commented on in light of what has been stated in the literature about the implementation of PMS.

3.3.1 The framework

The Stouten et al. (2018) change model comprises ten prescriptions. Unlike Kotter's (1996) model, not all the prescriptions given need to be observed step by step, following a linear sequentiality of activities that need to be carried out. Rather, this framework collects a set of suggestions, which are commented on and supported by the various literature references identified through the authors' literature review. However, it is suggested or otherwise evident that some suggestions are designed to be applied in the early stages of the change process while others in the later stages.

Table 2 below provides a description of Stouten et al.'s (2018) ten steps and their benefits. We have given an abbreviated name to each of these steps to facilitate the identification and more easily recall each one. Let us now proceed to analyze the phases in order to find similarities or differences from the other models of organizational change outlined earlier.

Nr.	Step	Description	Advantages
1	Get Facts Regarding the Nature of the Problem (s)—Diagnosis Step #1 (Organizational diagnosis[6])	•Gathering information to provide insight into the need for change and about preexisting conditions or constraints that might affect implementation.	•Useful to make change recipients and other stakeholders believe that the reasons for change are legitimate and its direction rational. •Helps to identify discrepancies between current assumptions and facts and to develop new thinking about the organization and the need for change. •Avoids basing change initiatives on poorly understood problems.

[6] Parentheses include a name assigned by us to more easily recall each of the ten steps

2	Assess and Address the Organization's Readiness for Change—Diagnosis Step #2 (Change readiness assessment)	•Assessing the capacity of the organization and its members to take on the demands effective change requires. •It depends on the (I) change history, (II)degree of stress already faced by employees, (III) leadership commitment, (IV) individual and collective self-efficacy, (V) discrepancy between present and desired end-state, (VI) awareness regarding the existence of, the sources of, and solutions to the organization's problems, (VII) appropriateness of change for the organization, (VIII) capability of the leadership to manage the change, (IX) personal benefits related to the change & (X) feeling from the employees that they will receive the needed support from the management and the colleagues.	•Helps assess the feasibility of change and build effective change strategies by identifying barriers and enablers to change.
3	Implement Evidence-Based Change Interventions (Evidence-based implementation)	•Recurring to people inside and outside the organization who are experienced with the problem and can help identify plausible solutions. •Listening to stakeholders, including affected employees and managers, as they are important sources of information about possible solutions and may be able to test alternatives to see what might work. •Looking for scientific evidence on the likely benefits (and risks) of specific kinds of change and how to effectively implement it. •Importance to choose interventions that develop change-related skills, offer rewards and incentives to motivate change, and provide opportunities to practice change activities in supportive environments.	•Increases the likelihood of successful change. •Helps create acceptance from stakeholders •Helps improving the technical content of the change •Helps people make feel motivated and capable to implement the change

4	Develop Effective Change Leadership Throughout the Organization (Leadership development)	•Training and developing existing leaders in change-related skills with a focus both on how to deal with change themselves and how to effectively manage change from the perspective of their employees. •Supporters of the change should be individual leaders who are trustworthy, supportive, honest, and transparent about the nature of the change and future plans are likely to effectively create a psychologically safe environment where there is room for voice, mistakes, and learning.	•Leaders play a central role in change as they can serve as change agents and role models. •Effective change leaders are able to support people during the transition and motivate them to change. •Employees are more motivated and feel the support of a capable leadership
5	Develop and Communicate a Compelling Change Vision (Change communication)	•Development of a vision of the desired future end state and communication it to internal and external stakeholders. •Vision must reflect goals that can be broadly shared. •Information from stakeholder groups (e.g., employees, managers, and clients) can be gathered to help identify motivating features. •Research also supports the value of a vision communication process based on repetition, use of multiple channels and quality evidence to convey a logical structure.	•Shared goals and positive beliefs about the reasons for change that are in line with the vision improve the likelihood of successful change implementation. •Explanations that help change recipients to understand the reasons for the change can enhance their positive reactions. However, where stakeholders incur losses from the change (e.g., job loss), it is less clear how to create a shared vision.
6	Work with Social Networks and Tap Their Influence (social networks exploitation)	•Work with social networks, and create and exploit relational ties.	•Change agent efficacy derives not only from personal skills but also from the network ties the individual has. Creating relational ties with potentially influential organizational members who support the change can be an important way to coopt fence-sitters who remain resistant. •Individuals in highly cohesive teams are likely to be more swayed by appeals directed to the team and by change efforts that engage the team as a whole than by efforts disconnected from their team.

7	Use Enabling Practices to Support Implementation (Implementation support)	•Use a number of enabling processes to support change interventions. These are the use of goal setting, the creation of learning opportunities, the involvement of employees, the creation of transitional structures, and the use of fair procedures in decision-making.	•Goal setting can make people realize change and understand its scope and scale, address conflicting goals, and avoid a lack of managerial accountability or change. •Providing room for learning and skill development helps prompt greater change motivation. •Participation favors information sharing and obtaining feedback. •Fairness and treating people respectfully reduce resistance to change. • A high level of organizational identification can facilitate acceptance of change, as long as the change process is perceived as fair and provides visible benefits for the organization, even when there are disadvantages or no visible benefits for the single individual. •Transitional structures help oversee the change and special projects, rules, or trials that can be used to modify and expand the change as needed.
8	Promote Micro-Processes and Experimentation (Experimentation)	•Promote small-scale or micro-processes to allow change recipients to provide feedback and make local adjustments to broader change plans based on their own experience	•It supports learning by doing and allows adjustment to local elements in the organization. •It favors the achievement of "small wins" that inform change recipients about the changes' potential and provide proof of concept with respect to possible benefits. •It favors bottom-up change proposals from employees themselves. •If leaders respond to these proposals, they favor the feeling of fair treatment
9	Assess Change Progress and Outcomes over Time (Progress assessment)	•Conducting periodic assessments to determine whether the planned change is producing anticipated activities, experiences, and outcomes.	•It provides feedback to gain an understanding of the change's effects and make improvements. • It supports learning and change implementation. • It may help keep people committed to the change.
10	Institutionalize the Change to Sustain Its Effectiveness (Change institutionalization)	•Sustaining change by integrating it into the larger systems of the organization, including its culture, standard practices and management systems. •Ensuring continuity of commitment and support by the leadership. •Using enabling structures help to maintain new practices as well improving their efficiency and effectiveness	•It helps make change sustainable over time, even when people in the company change.

Table 2: Description and advantages of following each step of Stouten et al. (2018) framework

The first steps, related to conducting a diagnosis of the current situation in which the company finds itself, are rather classic, as it is possible to find them in older change management models (Kolb & Frohman, 1970; Lippitt et al., 1958), as well as in more recent ones (Luecke, 2003; Kanter et al., 1992; Beer et al., 1990). One of the few models to leave out this stage are precisely Kotter's (2012; 1996) model and the ADKAR (Hiatt, 2006), which seem to start at an immediately later step, already devoted to creating a sense of urgency and need to change. Stouten et al. (2018) noted that the usefulness of this approach is supported by research in the field of change management (Armenakis & Harris, 2009; Armenakis et al., 1993), as well as in the decision-making one (Nutt et al., 1999).

The second step, also devoted to the diagnosis, instead encompasses one of the concepts that has taken hold most in the organizational change literature, namely that of *change readiness* (Rafferty, Jimmieson, & Armenakis, 2013; Weiner, 2009; Holt, Armenakis, Feild, & Harris, 2007; Jones, Jimmieson, & Griffiths,2005 Armenakis & Harris, 2002; Armenakis et al., 1993). Nevertheless, it is a concept generally ignored by other prescriptive change management models, focusing more on the concept of resistance instead of readiness to change.

Armenakis et al. (1993), who were the first to propose the theory about *change readiness*, originally defined *change readiness* as the "beliefs, attitudes, and intentions regarding the extent to which changes are needed and the organization's capacity to undertake those changes successfully." The theory related to *change readiness* has undergone numerous revisions and expansions over the years, including some by the original authors (Rafferty et al., 2013; Holt et al., 2007; Armenakis & Harris, 2002), becoming an increasingly multidimensional concept.

Initially, there were only two dimensions considered, and they concerned the discrepancy between the current situation and the desired situation, which is necessary to develop a need for change, and self-efficacy, i.e., individuals' perception that they and their organization have the capability to introduce change (Armenakis et al., 1993). The framework was then expanded by taking into account additional elements such as principal support, i.e., the perception that individuals will receive or can seek help from their superiors, and valence, i.e., the perception of the benefits and disadvantages related to the change for the job role of the individual (Armenakis & Harris, 2002). The concept of *change readiness* was then further expanded by taking into

account both organizational and individual variables (Rafferty et al., 2013). These variables can be found in the description of the second step in Table 2.

The third step emphasizes another element discussed earlier, the fact that the change management literature and related models do not provide great suggestions regarding the content of change. This model seeks to acknowledge this limitation by suggesting that the chosen interventions should be consistent with the issues the company aims to address. This also turns out to be consistent with what has been said in the PMS literature, which suggests that tools and related techniques should be chosen based on actual business needs (Bourne et al., 2002; 2000; Hudson et al., 2001). While obviously not providing technical suggestions, Stouten et al. (2018) provide some steps that would be aimed at supporting the identification of the most congenial solutions to the problem.

The fourth step devoted to the identification and development of change leadership is in line with what has been claimed in other models (e.g., Kanter et al., 1992; Kotter, 1996; Luecke,2003). The absence of support from leadership or the lack of skills related to communication and change management are, in fact, frequently reported in the literature as elements that can hinder the success of change processes (Hiatt, 2006), while the presence of leaders with change-related[7] skills is suggested to be an enabling factor (Bruch & Sattelberger, 2001). Therefore, Stouten et al. (2018) advise not to take these capabilities for granted and to try to bring on board project leaders with knowledge and skills that complement each other. The importance of the role of leadership is also emphasized in numerous papers related to PMS (Taylor & Taylor, 2013; Franco & Bourne, 2003; Kasurinen, 2002), as we have seen in the related literature review chapter.

The fifth step, devoted to developing and communicating a change vision, is present in many modern models (Luecke, 2003; Kotter, 1996; Kanter et al., 1993). However, unlike these models, they do not provide specifics on what the content of the vision should be due to the presence of conflicting evidence about this topic in the scientific field. They suggest, however, that stakeholder expectations should be taken into account and that communication reduces misunderstandings, which are at the root of many cases of resistance. They also suggest that communication should repeatedly occur through different channels and that evidence should be brought in to support the

[7] One example is the ability, which a leader may have, to be able to adopt a transactional or transformational leadership style when needed and depending on the situation in order to motivate people toward change.

need for change. These latter suggestions are also in line with what is recommended in other change management models (Hiatt, 2006; Kotter, 1996).

The sixth step remains at least partly shared with other models. For example, Kotter (1996) suggests composing a guiding coalition to support change composed of individuals from different areas of the organization to exert greater influence on people from the various organizational units to adopt the change. Hiatt (2006), on the other hand, does not explicitly talk about social networks or guiding coalition building but suggests that the type of relationships existing in the company can influence the effectiveness of the change process. He also recognizes that for change communication, some individuals may be better than others because of their credibility or role in the company. This step also considers the role of the change agent, who is a facilitator of change and individual transitions. This subject is often found in the organizational change literature, making its appearance as early as Lippit et al.'s (1958) model. Initially, this individual was expected to be a kind of consultant specializing in behavioral psychology but also quite knowledgeable in the organizational field. In more recent years, however, it has been recognized that this role can also be played by figures within the company, such as managers and employees (Hayes, 2022). The kind of support given by these individuals is generally both emotional and psychological and sometimes partially technical in nature. Finally, it may be helpful to underscore that the change agents are usually not seen as change managers, as they are not held accountable to the change project itself. Their job is precisely to facilitate the change, not to act or be directly accountable with respect to its implementation. That said, it is still possible that the role of change agent is also held by a change leader or by figures with important managerial responsibilities.

The seven step is only partly shared with the other models. Stouten et al. (2018) suggest that the enabling structures and practices should be related to goal setting, learning, employee participation, fairness and justice, and transitional structures. While many models generally consider goal setting, learning, and employee participation relevant (Hiatt, 2006; Kotter, 1996; Kanter et al., 1992; Bridges, 1991; Beer et al., 1990), fewer models explicitly consider transitional structures and fairness and justice. Bridges (1991) is an exception as he argues that providing temporary and transitional structures may help with the implementation of the change. Hiatt (2006), Kotter (1996), Kanter et al. (1992), Bridges (1991) Beer et al. (1990) all suggest that treating employees respectfully favors the acceptance of the change. However, they still don't consider, unlike Stouten et al. (2018), all the different aspects of organizational justice, i.e.,

procedural, distributive, informational, and interpersonal[8]. The concepts expressed in the reflections made by the authors of these models seem to encompass, and in any case, only in part, the concepts of procedural justice, interpersonal justice, and informational justice, as they take into account the importance of making people feel involved in the project, communicating the change and treating employees with respect.

The eighth stage is also considered by some of the literature on prescriptive models. Bridges (1991), Hiatt (2006), and Schein (1996) emphasize the importance of allowing people to experiment with new work methods in a safe environment and creating a psychologically safe setting in which people do not feel judged if they make a mistake. In addition, many of the models of individual change management (e.g., Adams et al. 1976; Parker & Lewis, 1981) consider the importance of the "testing phase," as they state that if the testing does not go well, individuals may become frustrated, angry, or deny the need to introduce change. Stouten et al. (2018) also suggest the importance of achieving small wins, rather than quick wins, as the classical Kotter (1996) model suggests. Both recognize the usefulness of achieving desired effects associated with change during the implementation process. However, the former asserts that it is useful to focus on gradually achieving pre-determined goals relative to specific areas of the company and then propagating the change gradually to the other areas without necessarily trying to impose short-term timelines. Kotter (1996), on the other hand, focuses heavily on the time frame in which results should be achieved, arguing that if positive effects are not seen regularly every three to six months maximum, momentum could be lost, and the project could stall. The reason for this substantial difference is that research has yielded discordant results with regard to the achievement of quick wins (Van Buren & Safferstone, 2009) because while they may reinforce a sense of the usefulness

[8] Hayes (2022) provides a comprehensive explanation of these four types of *organizational justice*. In particular, he affirms that *distributive justice* depends on the perception of how the disadvantages and benefits associated with change are shared among stakeholders. *Procedural justice* concerns the individual perception in relation to the level of involvement granted to them in the implementation process and decision-making processes; it also depends on having granted them the opportunity to express their opinions, concerns or ask for clarifications in relation to the project. *Informational justice* depends on the perceived accessibility given to subjects in relation to information relevant to understanding the reasons for changing and using certain procedures rather than others and their implications. *Interpersonal justice* concerns the perception of having been treated respectfully and without injury to one's dignity.

of change, trying to achieve positive results in the short term could prevent the achievement of far more ambitious results in a short time frame.

The ninth step, devoted to assessing the change progress, is also considered in many change models. Kotter (1996) suggests achieving regularly "quick" visible and not ambiguous wins to prove that the project is giving the expected results. Lippit et al. (1958) and Beer (1980) suggest the importance of tracking the progress of the change and communicating it, as not everybody involved in the change project may be aware that their efforts are producing the expected results. Stouten et al. (2018), as well as the authors of these other models, suggest that the achievement of visible progress serves, on the one hand, to reinforce the change and continue to pursue the project, and on the other hand, it helps to identify whether corrective action needs to be taken if the change is not being realized in the manner expected.

The tenth and last recommendation is absolutely in line with what has been claimed by other change management models and PMS implementation research. For example, Kanter et al. (1992) devote a whole stage to the institutionalization of the change, while Kotter (1996) 's model conclusive phase is about anchoring the new approaches in the organizational culture. Research related to management accounting change and PMS seems to confirm both the need to "institutionalize change" (Burns & Scapens, 2000) and to link new ways of working to organizational culture (Bititci et al., 2006).

3.3.2 The enabling and hindering factors in Stouten et al. (2018) framework

The table below collects the enabling and hindering factors that emerge from the steps, comments, and prescriptions and the suggestions given in each of them by Stouten et al. (2018).

Nr.	Step	Success/enabling factors	Hindering factors
1	Organizational diagnosis	1) *Presence of an assessment* of the company's condition, *problems to solve* and *opportunities to catch*, constrains and enablers of change 2) *Stakeholders believe* that the *reasons for change* are *legitimate* and its *direction rational* (i.e. awareness of the need for change). 3) *Information* for the assessment is gathered through *multiple sources*	1) The reasons for change and the problems affecting the organization are poorly understood 2) Stakeholders don't believe in the change process 3) The assessment is not based on multiple information sources (e.g. one subject perceptions, using only one information channel etc.)

2	Change readiness assessment	1) Organizational history is characterized by previous similar successful change processes 2)Change recipients are not stressed 3)Leadership commitment 4)Leadership capability to manage the change and support individuals 5) There are perceived benefits associated with the change for the individuals who compose the organization 6) Individuals and groups believe that they have the knowledge and skills to implement the change (self-efficacy) 7) Individuals feel that they'll receive the needed support from the leadership and the colleagues 8) Individuals feel a discrepancy between present and desired end-state 9) There is an awareness regarding the existence of, the sources of, and solutions to the organization's problems 10) Individuals feel that the change is appropriate for the organization	1) There are previous similar unsuccessful changes or experiences of unfair change processes 2) The degree of stress that change recipients currently face is high 3) The change is perceived as detrimental to the interests of the stakeholders 4) Individuals feel that they would not be capable of dealing with the change 5) Individual don't feel the support from the others 6) Leadership is not committed 7) Leadership does not provide support to individuals 8) Individuals don't understand the reasons for change 9) Individuals don't feel that the change is appropriate for the organization
3	Evidence-based Implementation	1) The change intervention is appropriate for the organization, and deals with the problems and opportunities 2) The change intervention is implemented with the support of internal or external individuals that already have experience with that kind of change 3) The change intervention is supported by other studies that provide a method for implementing it 4) Individuals possess change-related skills 5) Rewards are offered to those who adopt the desired behaviors 6) Intervention compliance when the change success depends on fully implementing key aspects of a targeted change	1) The change intervention is not appropriate to address the company's problems and opportunities 2) The change intervention is managed and supported by individuals who have not the right skills or knowledge 3) The actions and activities of the change interventions are not coherent with the change project

4	Leadership Development	1) Leadership continuously supports the change during its implementation and does not lose commitment 2) Leadership has change-related skills 3) Leadership is shared by individuals who have complementary roles and competencies 4) Leadership has an idea of what may be the barriers to change and is prepared to address them 5) Employees trust the leadership	1) There is no leadership (Laissez-faire leadership) 2) Leadership loses commitment 3) Leadership does not provide support 4) Leadership is composed of only one individual or is shared by individuals who have the same competencies and/or roles. 5) Leadership is not prepared to deal with the issues related to the change implementation
5	Change Communication	1) A compelling vision/change message is developed and communicated 2) The change message reflects a goal that is broadly shared 3) The vision favors positive beliefs about the reasons for change 4) The change message is repeated multiple times and using different communication channels 5) The change message provides evidence about the need for change	1) The change message is undercommunicated 2) The vision does not reflect a broadly shared goal 3) The vision favors negative beliefs about the reasons for change 4) The change message is supported by little or no evidence
6	Social Networks Exploitation	1) The change agent has relational ties with the change recipients and people who have an influence on the members of the organization or the team they belong to 2) The change agent is perceived as trustworthy	1) The change agent has no relationship with the most influent stakeholders 2) The change agent is not perceived as trustworthy, reliable, or capable

7	Implementation Support	1) Set goals are also related to the development of new competencies and achievement of targets 2) There's a psychologically safe environment that allows learning, testing, and experimenting 3) The implementation process enables learning processes 4) Individuals are accountable for their actions 5) Employees participate and are involved in the change process 6) Employees feel to be treated respectfully and equally in the change process (organizational justice) 7) High level of employee identification with the organization, provided that the change process is perceived as fair (organizational justice) 8) Existence of transitional structures which allows experiments and local initiatives	1) People don't feel free to express their concerns and feelings because they fear being judged or blamed 2)Individuals feel that they are not being treated respectfully 3) People are not involved or feel that their opinion doesn't count 4) There is no room for learning or improvement 5) People are entrusted with conflicting or unclear goals 6) There is no accountability related to the change 7) There is a low level of employee identification with the organization, and the change does not produce benefits for the single individual
8	Experimentation	1) Individuals are allowed to conduct experiments and pilot tests related to the change 2) Change recipients are allowed to provide feedback and make local adjustments to broader change plans based on their own experience 3) Achievement of small wins	
9	Progress Assessment	1) Periodic assessments are conducted to verify the implementation progress and that change is anticipated activities, experiences, and outcomes 2) The metrics used for these periodic assessments are reliable and aimed at measuring information sharing, learning, commitment, competency, and efficacy over time as well as whether implementation of new practices has increased.	1) Individuals don’t know at what point is the implementation process and whether there’s a progress 2) Individuals don’t know if their efforts are producing the desired outcome or, at least, positive results

10	Change Institutionalization	1) The change is integrated into the larger systems of the organization, including its culture and management systems. 2) Leadership remains committed to the change, even after its implementation 3) The new practices have become routine 4) Use of enabling structures to maintain the new practices	1) the change is not successfully integrated into everyday routines, systems, and practices and is not anchored to the organizational culture 2) the leadership loses interest in the new practices, systems, and tools

Table 3 Enabling and hindering factors identified in each step of Stouten et al. (2018)

We now proceed to comment on these factors in light of what has been said by the research related to the implementation of PMS.

3.3.3 Analysis of the enabling and hindering factors in the light of PMS literature

Let's now begin with analyzing the enabling and hindering factors identified in the ten prescriptions. It is premised, however, that some factors reappear in more than one step, and in that case, we will not linger on commenting on them again.

3.3.3.1 Organizational Diagnosis (1st step)

The first enabling factor (*assessment of problem*) identifiable in the *organizational diagnosis* step, while not mentioned in most publications on PMS design and implementation, is still at least implicitly considered essential, as it is generally suggested that PMS need to be adapted and customized to the business (Melnyk et al., 2014; Sousa & Aspinwall, 2010; Neely et al. 2000). As we have already said in the previous chapter, it is believed that such systems should be developed to meet knowledge and control needs, although the literature does not usually frame this need in terms of a problem to be solved or opportunity to be seized through the introduction of the change. Not by chance, the majority of PMS implementation processes are 'needs led' (Bourne et al., 2003a). Little has certainly been said about the possible effectiveness of producing a corporate diagnosis in increasing commitment and persuading people in the company to accept the need for introducing a PMS, which is a point instead generally regarded as essential in the change management literature (Armenakis & Harris, 2009; Luecke, 2003; Kanter et al., 1992; Beer et al., 1990). Moreover, the diagnosis suggested in PMS-related approaches is precisely focused on trying to fit the tool to the business, not so much on identifying problems or opportunities to solve or seize (e.g., Sousa & Aspinwall, 2010; Kaplan & Norton, 1996).

The second enabling factor (*stakeholders believe in the project*) is also reasonably considered. In this regard, the literature suggests that the presence of perceived benefits associated with change

helps create acceptance by internal stakeholders (Cavalluzzo & Itner, 2004; Bourne et al., 2003b; De Waal, 2003; Speckbacher, 2003; Bourne et al., 2002) because they see the change as rational and legitimate, while the perception of disadvantages linked to it may be a significant hindering factor.

Concerning the third (*information gathered through multiple sources*), however, little has been said about how the business diagnosis should be carried out and what information should be used in preparation for change implementation. Typically, the literature focuses on the involvement of people from different levels of the organization, who can provide additional information, perspectives, and suggestions for improving the system (Sousa & Aspinwall, 2010). When it comes to information, the focus of PMS literature is usually on information systems, as they form the backbone on which the dashboards of indicators that make up the performance measurement system are built (Bourne et al., 2000). Instead, the change management literature suggests that gathering information from multiple parties can help not only to improve the content of change but also to see certain problems and opportunities from different angles, as well as give more information about the actual readiness of the organization for change. On the latter aspect, it is also fair to report that Bititci et al. (2006) still suggest conducting an analysis of management style and organizational culture to understand the level of readiness in adopting PMS in order to increase the odds of successful implementation and to decide whether the company is actually capable of implementing it.

Concerning the hindering factors, both the first (*reasons for change poorly understood*) and the second (*stakeholders don't believe in the change*) seem considered by PMS literature as a disagreement or misunderstanding with respect to the implications or usefulness of the PMS for the company, and what the goals of the change should be, are generally described as significant hindering elements (Wouters & Wilderom, 2008; Kasurinen, 2002). In many cases, it has already been mentioned that the failure of these projects is related to the unsuitability of the tool for the type of company, thus denoting a lack of understanding of what the actual business needs are (Hudson et al., 2001; McCunn, 1998).

3.3.3.2 Change readiness assessment (2nd step)

Moving into the second step, the enabling and hindering factors are all tied to the concept of *change readiness* that we already touched on previously. Although the topic of *change readiness* has been the subject of numerous articles and studies, the literature on PMS is relatively silent on

it. Nevertheless, some of the elements that make up this multidimensional concept turn out to be considered. To begin with, Stouten et al. (2018) suggest that organizational history decisively influences both the likelihood of success of change initiatives and how they should be conducted. They state that if a specific company has successfully undertaken similar past changes, the possibility of success is higher, and managers, in their communication of change, can foster acceptance of individuals by remembering what happened in the past.

In contrast, if other similar changes have not been previously successfully implemented, the likelihood of success is lower because individuals are less likely to believe in the new change project, and managers will have to put more effort into making it clear what the differences are between the current situation and past instances of failure. The impact of organizational history is usually not considered in the literature on PMS. Rather, some studies highlight how a change-averse organizational culture, sedimented over the years, can hinder the implementation of these systems (Madsen & Stenheim, 2014; Franco & Bourne, 2003; Bititci et al., 2004).

Another second element is related to the degree of stress already faced by employees and managers of a company. Indeed, it has been shown that in the presence of a high level of stress, people are less receptive both to the need to introduce changes and to accept them (Meuris & Leana, 2015; Linden et al., 2005; Hugh, 1997), primarily if these changes are associated with the perception that is necessary to work harder or expend effort in order to implement them.

Stress is another factor primarily ignored in the literature on PMS implementation. Most of the contributions in the literature concern increased stress on the part of employees and managers related to the use of PMS, with adverse effects on the performance of individuals (Franco-Santos et al., 2012). One issue that may perhaps be close, however, is the loss of commitment to the project by management since it can happen that different, seemingly more stringent, or "stressful" priorities emerge. These situations can lead to a slowdown or failure of change projects (Bourne, 2005).

Leadership commitment is an element that, as we have seen in the literature review on PMS implementation, is widely regarded as essential (Bourne, 2005; Bourne et al., 2003; Kasurinen, 2002) by PMS implementation literature, and we do not deem it necessary to explore it again. The capability of the leadership to manage the change and to possess change related-skills is partly consistent with what PMS literature claims. The presence of management that has received training or had past experience with the use of PMS is generally considered an enabling factor (Kasurinen,

2002). However, the change management literature speaks not only of skills strictly related to the "content" of change but also of the management of "individual transitions." In particular, among these are interpersonal and social skills that enable the manager to provide emotional support to individuals in difficulty and to carry out change-related communications more effectively (Stouten et al., 2018). The perception of benefits associated with the change is another already considered enabling factor in the PMS literature (Bourne et al., 2002). We refer to that chapter for a more in-depth discussion. Connected to this element, of course, is that of the appropriateness of the system, which is also extensively described as essential in the PMS literature (Bourne et al., 2003a; McCunn, 1998). In fact, managers will only be able to perceive benefits associated with a certain PMS if they think it is indeed effectively applicable in their organization.

Perception of self-efficacy is another factor that seems to be fairly well (Munir, Baird & Perera, 2013; De Waal, 2003) considered, although there has not been much exploration of what factors this self-efficacy depends on. As we have seen above, several studies suggest that training is an element that can foster the implementation of PMS also because it can help, among other things, make individuals feel capable of introducing and using these kinds of tools. Nevertheless, studies related to change management suggest that an individuals' perception of their capability to introduce a change is quite complex and also related to other factors like past experiences (e.g., people who have failed in a certain situation may feel inadequate or incapable to deal with other similar situations) and psychological (Hayes, 2022) conditions (e.g. individual's locus of control or learned helplessness).

As reported in the PMS literature and as mentioned in the previous section, typically, one of the elements that initiate the process is the need to increase the company's information and control capabilities (Bourne et al., 2003a). Thus, it can be said that for PMS, the enabling element of the perception of a discrepancy between a present situation and the desired future one, described extensively in the change management literature (Armenakis et al., 1993), concerns the dissatisfaction with knowledge and control needs primarily (Bourne et al., 2003).

Fairly ignored, instead, is the aspect of individual support that leadership can provide to those who will be affected by the change. Generally, the literature focuses mostly on factors such as leadership support with respect to the system (Cavalluzzo & Itner, 2004) and active sponsorship (Argyris & Kaplan, 1994) as an element that influences the use of the system in employees who are at lower levels of the organization. It is also recognized that a leader already trained on PMS

can act as a facilitator and foster change by sharing their knowledge with employees (Bourne et al., 2003; Kasurinen, 2002). In contrast to the change management literature (Armenakis et al., 1993), the support that leadership can give in emotional terms is not much addressed, as well as the importance of providing employees the perception that they can always ask their superiors for help if they feel the need.

3.3.3.3 Evidence-based Implementation (3rd Step)

The factors tracked in the third step are, to some extent, all considered in the PMS literature.

To begin with, the presence or arrival in the company of people who already have experience or knowledge with respect to these tools is considered a significant enabling factor (Kasurinen, 2002). In addition, we saw in the chapter on PMS that there are many approaches aimed at providing a method for implementing PMS, and, therefore, their usefulness is rather perceived (e.g., Sousa & Aspinwall, 2010; Neely et al., 2000). According to the organizational change literature, the assignment of rewards associated with adopting change is aimed at increasing the perceived benefits associated with its introduction for each individual. However, the research on PMS implementation does not focus much on this aspect when introducing these new tools. It is worth mentioning that the accounting and management control literature deals extensively with this topic in the context of management control systems and basically recognizes the usefulness of rewards, although their effectiveness varies depending on several contextual situations (Franco-Santos & Otley, 2018; Franco-Santos et al., 2012). Intervention compliance also turns out to be an issue that is considered crucial as well. It is sufficient to think of what was said earlier in the previous chapter concerning the problems that can be generated when a PMS remains incomplete, does not meet certain levels of reliability, or is used little or poorly.

3.3.3.4 Leadership Development (4th Step)

The fourth step has several elements in common with what has been elaborated in the literature on PMS and management accounting change since leaders are one of the factors that make up the same framework as Kasurinen (2002). The importance of leadership commitment throughout the implementation process is another widely discussed element (Bourne, 2005; De Waal, 2003; Bourne et al., 2002). Although it's not a particularly explored aspect, trust in leadership has also been recognized as a success factor for implementation in a few studies (Tuan, 2012).

In relation to leadership characteristics, not much has been said about which ones should make the implementation process more manageable. One exception comes from (Jansen, 2011), who

reported how the adoption of both a transactional and transformational leadership style has greatly facilitated individuals' acceptance of change in management control systems and a significant reduction in resistance. Although not covered in Stouten et al.'s (2018) framework, the topic of transformational leadership and transactional leadership is widely addressed by change management studies (Eisenbach, Watson, & Pillai, 1999). In addition, the involvement of managers from different levels of the organization is also contemplated by PMS literature precisely because it is assumed that they can provide complementary knowledge useful for the development of the system as well as being able to strengthen PMS sponsorship in their individual areas of authority (Bourne et al., 2003b; Argyris & Kaplan, 1994).

Finally, while there are not many studies that look specifically at the preparedness of leadership in addressing possible barriers that arise in implementation, their role is generally seen as rather active and aimed at responding to difficulties that arise in the process, even in the literature related to the implementation of PMS (Kasurinen, 2002).

3.3.3.5 Change Communication (5th Step)

As mentioned in the previous section, the importance of leadership in PMS implementation processes is already recognized. Also acknowledged is its role in communicating and developing a vision of the future (Ansari and Bell, 2009; Kasurinen, 2002) in order to align people's behavior toward the acceptance and use of the new system. However, research in this area has not focused much on identifying the most effective modes of communication about the implementation of a PMS or whether, for example, using multiple channels and repeating the message of change actually increases the likelihood of success and reduces misunderstandings.

The work of Argyris & Kaplan (1994) provides some suggestions on the content of communications and stresses the importance of providing evidence, perhaps gathered through other experiences or scientific articles, which testifies to the usefulness of a new tool. Still, their prescriptive approach does not bring much evidence, although it is based on the approach developed by Argyris (1970) over many years. Furthermore, their study addresses how to introduce an activity-based costing system, which we do not consider a PMS here, relying on the characteristics defined by Franco-Santos et al. (2012) and addressed in the previous chapter.

3.3.3.6 Social Networks Exploitation (6th Step)

Since the figure of the change agent is essentially ignored in the literature on PMS, it is natural that little consideration is given in this field of research to the characteristics or relational ties that

these individuals should have in order to foster implementation processes. More of a focus is, as we said, on the role of leadership, which turns out to be different from that of the change agent, at least according to the change management literature.

3.3.3.7 Implementation Support (7th Step)

Regarding the topic of goal setting and accountability, there is a large amount of literature related to the use of PMS for assigning targets and holding individuals accountable for achieving them (Franco-Santos et al., 2012; Ferreira & Otley, 2009). Nevertheless, not much has been said concerning the use of goal setting and accountability specifically for the implementation process of PMS.

It can only be assumed here that it was not considered a significant element in the implementation of the systems themselves and that at least some of what the research nonetheless uncovered with respect to the effectiveness of these approaches can be applied in these change initiatives as well. In relation, on the other hand, to the creation of a psychologically safe environment for testing the new methodologies, not much can be found in the PMS literature. It is also true that the implementation process has been defined by its nature as trial and error because it is very difficult to identify right away very effective and useful indicators (Wouters & Wilderom, 2008; Andon, Baxter, & Chua, 2007). There are some papers that suggest that a blame culture, which is generally referred to as detrimental to the creation of a psychologically safe environment, may prevent the full potential of performance measurement systems from being exploited and limit related learning processes (Gao, 2015; Goh, 2012). There are some cases where this type of culture ended up fostering resistance to change and blocking the implementation process (Nudurupati, Arshad, & Turner, 2007), while in other cases, the absence of a blame culture seems to have fostered acceptance of new metrics and a new PMS (Kennerly & Neely, 2002).

In relation to the factor of *organizational justice*, some studies in the field of PMS and management accounting contemplate it. Their focus is usually on how the use of the PMS and the way it is designed influence the perception of organizational justice (e.g., Parker & Kohlmeyer, 2005. Rowland & Hall, 2012; Burney et al., 2009). The issue of organizational justice and its components, i.e., procedural, informational, distributive, and interpersonal justice, are not considered for the implementation process of these systems.

Another element that is completely ignored is the employees' level of identification with the organization, which instead seems to play a significant role in creating acceptance of the change

(Stouten et al., 2018). When employees identify with their organization, they are usually more willing to accept changes that benefit the company, even if they have to work harder and do not receive direct benefits from it (Hayes, 2022).

Participation and involvement are generally recognized as necessary in the literature related to PMS, both for the contribution that managers in different areas could make during the design phase to improve the system and for the importance it plays in fostering acceptance of change in individuals. In the PMS literature, as well as in the change management one, it is recognized that adopting a participatory style in project implementation helps to generate a sense of ownership in individuals concerning the project itself, facilitating the generation of commitment (Bourne et al., 2003 De Waal, 2003).

3.3.3.8 Experimentation (8th Step)

Step 8, which is devoted to experimentation with new practices, finds at least partial support in the PMS literature. As mentioned previously, experimentation is thought somewhat as something inevitable in the design and improvement of these systems (Wouters & Wilderom, 2008). Thus, it can be hypothesized that allowing management and system users to experiment freely with new indicators may be a factor that fosters change, enables system improvement, and generates learning processes.

Although often considered in the change management literature, the topic of small wins or quick wins is not particularly referenced in the PMS literature. Yes, the implementation process is often gradual, as new indicators and measures are introduced gradually in different organizational areas (Bourne et al., 2000). Still, no study has tried to demonstrate the effect that achieving positive results during the implementation process has on the success of these initiatives. In the change management literature, the achievement of wins plays an important role in maintaining momentum, convincing those individuals who remained skeptical about the project, and giving people the feeling that the change is yielding visible benefits (Hayes, 2022; Stouten et al., 2018; Kotter, 2012; 1996).

3.3.3.9 Progress Assessment (9th Step)

The critical factors that emerge from this step emphasize the importance of tracking the progress achieved to understand if any corrective actions have to be taken and whether the change is yielding the desired results. Above all, the purpose is to make sure that the change is actually taking place and that people are engaging in the desired behaviors and achieving appropriate levels

of performance (Kanter et al., 1992). Checking the progress of the implementation process and the effectiveness of the system itself is something that is suggested in prescriptive approaches related to the development and implementation of these systems, especially in order to improve the design and make sure that the company introduces a PMS that meets business needs (e.g., Sousa & Aspinwall, 2010). Therefore, these reviews are primarily aimed at understanding the adequacy of the system design but not so much at verifying that people are using the system, how they are using it, etc. Studies related to the implementation of PMS generally consider the implementation successful when people actually use the system in the company regularly and extensively, supporting decision-making and control processes (Franco-Santos et al., 2012). Thus, it can be hypothesized that verifying that the system is actually being used can be helpful, provided that, if it is not, corrective action can be taken accordingly to encourage adoption.

3.3.3.10 Change Institutionalization (10th Step)

The factors that favor the initiative's success identifiable in this step are confirmed by what has been reported in both the PMS and management accounting change literature. As mentioned in the previous chapter, it was noted that in order to introduce a PMS successfully, it is often necessary for the management that has to use it to develop a new mindset, new knowledge, and a new type of organizational culture (Bititci et al., 2006). Organizational culture is also considered in the literature related to management accounting change based on institutionalist theories (Busco et al., 2005) since organizational culture itself has often been conceptualized as an institutionalized phenomenon (Schein, 2010). According to the management accounting change literature, change can only be said to be realized when indeed, the new activities and practices related to the new control system actually become routine in the company (Burns & Scapens, 2000) or, in other words, how things are done on a daily basis (Kotter, 1996). By turning into a routine, new practices can then be said to become part of the organizational culture itself.

The literature on PMS is silent in relation to enabling structures that can promote the durability of change. However, there are some recognized factors that reinforce change and encourage the adoption of the system, such as assigning targets to each manager that can be effectively influenced by them and ensuring consistency between the targets set and the type of role played by the person (Stouten et al., 2018).

3.3.3.11 The less explored critical success factors

We have just commented on what are the factors identified in the model, given what has been said in the literature on PMS. In light of this analysis, the least explored factors turn out to be these:

- Production of a diagnosis on the basis of which to identify an issue to be solved or on an opportunity to be caught that requires the implementation of the tool
- level of *change readiness*
- achievement of small or quick wins during the implementation process
- perceived fairness of the change process
- enablement of testing and experimentation activities also with the support of transitional structures and/or the use of a prototype of the tool
- level of employees' identification with the organization

Starting with the first factor, rather than the production of a diagnosis aimed at identifying and assessing a problem or an opportunity to be addressed, the literature on PMS suggests the usefulness of an assessment aimed at understanding what the company's current situation is, what are its needs and its readiness in terms of culture and knowledge for the introduction of the tool.

Instead, as we have said, the issue of *change readiness* is completely ignored, and only part of its components is considered important to the success of initiatives.

As mentioned before, the usefulness of achieving *small* or *quick wins* throughout the implementation process is not widely recognized, while it appears to be supported by both prescriptive models and research related to organizational change.

The issue of *fairness* or *organizational justice*, on the other hand, turns out to be considered only in relation to the use of the system already implemented, with respect to, for example, how and what targets are assigned or management's use of the system (E.g., Burney et al., 2009).

In relation to *testing* and *experimentation* of the system, we have already mentioned that it is considered essential to refine and improve the way in which the PMS is designed, finding the most suitable indicator dashboards to be used (e.g., Wouters & Wilderom, 2008). Less has been said about the usefulness of creating a safe psychological environment in which to try out and become familiar with the system in generating commitment, acceptance, mitigating resistance, and reducing people's sense of inability to use it.

Finally, nothing seems to have been said about the effect that a high level of *organizational identification* by management and employees could have on the acceptance of a PMS. This might be a significant success factor, especially when it is perceived that the PMS primarily benefits the

organization but not the individual employee. As mentioned in the previous chapter, one of the specific resistances identified and related to the use of PMS is resistance to measurement since not all individuals are willing to have to account in greater detail for what they do by seeing their performance measured. The question then arises as to whether a high level of identification with the organization might push individuals to accept the individual disadvantages of the system, such as seeing their performance measured in more detail, when there are, however, important perceived benefits to the company of which they are a part.

In order to better understand the role these factors may play in facilitating or not facilitating performance measurement initiatives, reference is also made to Kasurinen's (2002) framework presented in the previous chapter. On the basis of the contribution made by each of these factors in increasing the likelihood of success of the initiative, we will eventually assimilate them into one of the five categories mentioned earlier, which are *motivators*, *facilitators*, *catalysts*, *leaders*, and *momentum*, respectively.

4. Methodology of the case study

4.1 Research design

For this research, we have adopted a qualitative approach based on the collection of data through interviews in order to develop a case study. Given the procedural nature of change processes, we believed that, as in previous studies relating to a management accounting change and the implementation of performance measurement systems, it was useful to directly analyze a company that had proceeded to introduce a system of this type. Since the phenomenon of organizational change is non-static, one of the best analytical approaches is probably the longitudinal case study (Kasurinen, 2002). In our case, however, the interviews were collected when the implementation process was basically concluded. Still, we believe that the new condition in which the company operates cannot be considered as properly "static," as the updating and renewal of the PMS is a process that basically never ends and which inevitably repeats over time to keep these systems aligned and valuable for measuring corporate strategy (Bourne et al., 2000). The introduction of new indicators and tools remains ongoing. In any case, the choice of a case study in which the implementation had already taken place made it possible at least to collect the interviews more efficiently, allowing the perceptions and opinions with respect to the process to be collected relatively quickly. Moreover, as is well known, the case study methodology remains ideal to study a phenomenon in its entirety (Chiucchi, 2012; Yin, 2003)

The choice of the company fell on a medium-sized Italian company, which has experienced more or less uninterrupted growth over the last 20 years. Due to this development and the increase in the competitiveness of the environment in which it operated, it found itself having to introduce a management control system which, in addition to measuring variables of a financial nature, also made it possible to consider factors of a more qualitative and not financial nature.

The case also lends itself to interest because of the particularity of the industry in which it operates. There are very few case studies of companies operating in the same industry in which CAEN operates. Moreover, since it is more generally a company in which creativity is an essential component for its success, it is to be expected that there may be specific difficulties in relation to system design and identification of the most suitable performance indicators.

Regarding the mode of data collection, it was chosen to collect the information through interviews because we felt it was the most effective method to understand better the process

studied. As repeated several times throughout this work, the issues analyzed are closely related to the human element. Consequently, it appears important to collect directly through the interview what are the perceptions, concerns, opinions, and thoughts in relation to the phenomenon under analysis. To complement the interviews, direct observation of the implementation process would certainly have been another useful mode of data collection but, in our case, not feasible since the system had already been introduced by the time data collection began.

Nevertheless, it was at least possible to directly observe some examples of the system's dashboards to understand better its degree of detail and the kind of use of it in the company.

4.2 Data collection

The main sources on which this case study is based are interviews conducted with the organization's management. In addition to interviews, we also analyzed documents present on the company's website. Moreover, some notes were taken in relation to the dashboards of indicators used in CAEN and as a result of the informal and fortuitous meeting we had with one of the now-retired founders. The interviews conducted were always semi-structured. A literature review on the PMS and management accounting change had already been done before their administration. With reference instead to the change management literature, we were aware of the main theories and framework of Stouten et al. (2018)[9]. However, the choice of the latter framework rather than the others was made only when half of the interviews had already been conducted. In any case, the analysis of the change management literature had already supported us in developing the interview guidelines.

The interviews lasted an average of one hour and were supplemented by a focus group lasting about 2 hours. The focus group and part of the interviews were conducted directly while in the company. The rest of the interviews were conducted online through Microsoft Teams and Google Meet. Interviewees included the general director, the supply chain and production manager, the sales manager, the CFO, and the head of the technology department.

[9] We remind that the Stouten et al. (2018) framework was chosen both because it is recent and because it is based exclusively on scientific evidence, unlike other distinguished models. In any case, the model presents remarkable similarities with other less recent and more emblazoned ones such as that of Kotter (1996) or that of Kanter et al. (1992). Thus, the questions were still aimed at investigating the importance of organizational change issues for the implementation of the PMS.

All interviews were recorded and then transcribed. From the reading of these interviews, it was possible to perform coding that allowed the framework of Stouten et al. (2018) to be employed for case analysis. From the interviews collected, the Stouten et al. (2018) framework alone appeared to us to be inadequate to represent in a comprehensive form the management accounting change phenomenon under analysis[10]. Therefore, we also used the framework of Bourne et al. (2000) and the framework of Kasurinen (2002). We then codified the data on excel sheets taking into account the elements of each framework, to identify the factors of our interest for the analysis easily.

4.3 Data Analysis

In order to emphasize the non-static nature of the implementation process, we tried to report the results of this study, taking into account the different phases that constituted the introduction of a PMS within CAEN. Stouten et al.'s (2018) model, being designed to be generally applicable to any type of organizational change, from the introduction of new technologies and tools, to structural and cultural change, did not allow for a comprehensive view of the phenomenon and key events that characterize the PMS implementation process. The more technical aspects of implementation were left out, and the "timing" mainly refers to the human and individual transition of the group of individuals. It does not consider aspects related to the design and use of the specific tool in the business environment. To give greater clarity and completeness in the exposition and analysis of the results, we, therefore, decided to use, along with the framework of Stouten et al. (2018), the framework of Bourne et al. (2000) already employed in the literature review chapter since it is a non-static framework that gives a representation of what are the phases that constitute the implementation of PMS. In other words, Stouten et al.'s (2018) framework focuses on the human and organizational aspects of change and leaves out the technical aspects of implementation, considered instead in Bourne et al.'s (2000) framework. For this reason, it appeared difficult to apply Stouten et al. (2018) framework in the specific PMS implementation case. Moreover, already when presenting the results, we felt the need to adjust the framework of Bourne et al. (2000) by also considering the steps suggested by Stouten et al. (2018). We recall

[10] In the following paragraph dedicated to data analysis, it will be explained in greater detail why it has proved necessary to resort to further theoretical frameworks.

that the phases that constitute the Bourne et al. (2000) framework are *design*, *implementation*, and *use*. According to the authors, these three phases will occur again when the company decides to upgrade the system. We realized that these phases still did not fully represent the process of performance measurement systems implementation and use. The organizational change literature and various change management models suggest that the change process begins before the development or design of the new system, technology, or tool (Hayes, 2022). Stouten et al.'s (2018) framework initiates the change process with a phase devoted to the assessment of the situation the company finds itself in and the development of a need to change. By taking inspiration from Stouten et al. (2018), we believe it is possible to affirm that the implementation process starts prior to the actual design phase, as management must gain the awareness or need to introduce the new tool in order to decide to design, implement and use it. Also, the analysis of the case study seemed to confirm that this first stage is actually propedeutic in order to start the process reported in the Bourne et al. (2000) framework. We, therefore, suggest that the addition of a fourth phase, necessary to start the design phase, would be more representative of these processes and help us better understand the dynamics that lead to success in our case study. Therefore, in the analysis that follows, this additional first phase, which is closely related to the development of an awareness of the need for change among the individuals who compose the company, will also be considered. As we have said, the Bourne et al. (2000) framework, being focused more on the strictly technical aspects related to the introduction and use of the PMS, does not, in fact, particularly focus on the human element, unlike most of the change management models. Considering also these factors within the framework of Bourne et al. (2000) could give a more extensive representation of the implementation dynamics and why certain projects are pursued with a greater degree of success than others. Nevertheless, through the analysis of the data, we recognized that the frameworks by Stouten et al. (2018) and Bourne et al. (2000) still could not fully explain the management accounting change phenomenon of PMS implementation and the dynamics that bring success or failure of the process. We decided to take into account the framework developed by Kasurinen (2002), which was specifically developed in order to understand the effect and give a classification of factors that inhibit or promote change in management control systems. We recall that this framework distinguishes among the enabling factors the *catalysts*, *facilitators*, *motivators*, *leaders*, and *momentum*. The former represents an enabling factor directly associated with the change process and is essential for producing change. *Facilitators* concern factors that are not sufficient

on their own to produce change, although they often play an essential role in the success of these initiatives. *Motivators* are factors that facilitate the introduction of change in a general sense. *Leaders* are those individuals who have the ability to lead and promote change in the company. *Momentum* refers to the impetus gained by moving from a past condition to a new one, and that, if lost, could lead to a slowdown or blockage of change. Thus, we have a number of hindering factors whose presence can negatively affect the initiation or continuation of the change process. They are, respectively, *frustrators*, *delayers*, and *confusers*. *Confusers* are factors that can disrupt the change process and, therefore, usually may occur during the implementation process. *Frustrators* are factors, sometimes already present at the time the process is initiated, that tend to suppress the attempt to introduce change. Finally, *delayers* are transient and often technical factors that can hinder and slow down the change process. We understood that the framework from Kasurinen (2002) might indeed be useful to us because it could help in better understanding and detailing the effects that each of the factors considered in Stouten et al.'s (2018) framework produced in favoring or inhibiting the management accounting change process. Like most change management models, Stouten et al.'s (2018) framework provides a checklist of steps and enabling and hindering factors but does not classify the effects these factors may produce on the change process. Finally, we want to underline that Kasurinen et al.'s (2002) framework appears to be rather static, limiting itself to providing a classification of the factors that influence management accounting change initiatives and their effects on these types of processes. The framework of Bourne et al. (2000), which, as we have said, is rather technical and focused on PMS, and the framework of Stouten et al. (2018), which is focused on the more human aspects of change, take into account, instead, the flow of the process and the non-static nature of the phenomenon. Therefore, we believe that taking into account these three frameworks contemporarily allows us to more comprehensively analyze the process of PMS implementation and to take into account the timing and the effects and the role that different factors play in the different implementation phases.

5. Results

5.1 Description of the case company

Caen was founded in Viareggio (Tuscany, Italy) in 1979 by a group of senior engineers and physics researchers from the Istituto Nazionale di Fisica Nucleare (INFN), which is the Italian National Institute of Nuclear Physics. In particular, these figures carried out research activities within the institute and were consequently aware that one of the causes of frustration among the institute's researchers concerned the difficulty of developing and procuring the necessary apparatus to conduct research in this field. It was precisely because of this issue, which they were experiencing themselves, that they came up with the idea of forming a company that would deal with this issue and specifically take care of the development and production of the tools used by physics researchers. The company was originally founded by three individuals who believed in the project and who, shortly after creating the new organization, decided to resign from their positions at INFN. Despite their resignations, these people could leverage their connections at INFN, allowing them to have a great client list right away.

Over the years, the company had a gradual growth that led it to open some offices abroad and acquire some other small companies that operated in the same field. The company has recently experienced significant growth in size, expanding over the past six-seven years from having 60-70 people to more than 100.

Although the company has continued to expand over the years, it still faces a fair amount of competition. The industry remains rather a niche, and the competitors are not numerous. Still, since the market is relatively small, there is some significant competition in the ability to meet customer needs in terms of product and after-sales service.

The organization's final target clients are national or international institutions operating in different parts of the world. CAEN currently has some offices in the United States, Europe, and China. The company has a product list on its website, from which institutes or individual researchers can identify products of interest to them and already in production at CAEN. In addition, the company very often finds itself receiving requests for specific products from its customers that are not already in production. In this case, the company has to make convenience assessments to determine whether or not it is profitable to meet these specific requests. Sometimes

it may also happen that a decision is made not to fulfill some requests or to fill some unprofitable orders in order not to lose a customer who is considered important.

Although these cost-effectiveness evaluations are carried out regularly, some product lines that the company decides to implement do not always turn out to be truly profitable. Sometimes, the company may initially agree to produce certain tools because management thinks they will be successful when they later prove to be relatively unpopular and in low demand. Conversely, in other cases, some decisions to invest in new products can yield very positive results, especially if other institutes or researchers start conducting a similar type of research as the client who made the initial request.

There are, as always, pros and cons: "Having an answer always ready with the toy he wants is a great added value for the customer. I always say that we make toys for scientists. It's clear that providing them with any kind of toy at a reasonable price may not always be convenient for the company. Typically, you also have to contend with the fact that you could make very few of these objects, and this is a ballast that impacts you financially due to all the investments you make to develop them." CFO

In addition, when institute-wide research projects are established, there is often a competitive bidding process in which CAEN participates along with other competitors. In these cases, the objects of evaluation for the choice of the winner are usually the timing of order fulfilment, the cost of the order, the certifications held by the companies (ISO 9001, 14001 and so on), and the companies' reputation.

In terms of organizational structure, the company assumes a functional one. First, there is a research and development department, whose job is to design new products based on the demands of the company's customers and the projection of the future market's needs. In this department work the designers of the prototypes and products, who are subjects with backgrounds in engineering and physics. The person in charge of this department must ensure the progress of the work and present the feasibility of the orders that come to him through the sales managers.

Then there is the production department, which has responsibilities for the production of orders already accepted from customers. Its responsibility is to maintain contact with suppliers and to meet the budgeted production times and costs for accepted orders.

A purchasing department is responsible for sourcing the materials and components needed for production. Usually, the subparts of CAEN-designed instruments are not developed in-house, so

the company relies on a whole range of subcontractors. The purchasing department is accountable for obtaining components in the shortest possible time and within certain cost levels. One of the types of components the company makes the most use of is semiconductors, and as a result, it has been dramatically affected by the crisis in Taiwan.

There is also a classic administrative department that deals with the accounting and financial aspects of the company. It is in this department that economic and financial planning tools such as the budget are used.

Finally, there is a sales department composed of sales managers who directly preserve customer relationships. Generally, each sales manager is assigned a geographical area in which to operate. Nevertheless, some sales managers have relationships with individual institutions, which are treated as "countries" because they place frequent and/or substantial orders. One example of a very large client is CERN (European Organization for Nuclear Research). Yet, it is not always a person working for CAEN who deals directly with customers. In some markets (e.g., China, Japan, or South America), the company relies on intermediaries or dealers who basically act as liaisons with the sales manager responsible for that geographic area.

A peculiarity of this company remains that since its foundation, the managers of the various areas (except for some managers of the administration and finance area) are figures who do not have a background or degree in economics. For example, sales managers are subjects with considerable technical knowledge (they are usually engineers or physics graduates). This technical background enables them, on the one hand, to understand the real needs of customers (often very demanding) and, on the other hand, to report to production and design managers the requests made by customers to verify the actual feasibility of orders.

"Internally, we don't have pure salespeople; all salespeople have technical and scientific backgrounds. I, for example, am an electronic engineer, and I also do, let's say, the sales manager." Sales manager

The founders themselves were not subjects, after all, with much experience in the business world. We remind the reader that the company's founders were researchers and technicians with little business experience prior to the creation of CAEN[11]. It is true, however, that since the beginning, they have been quite forward-looking as well as willing to learn new solutions and

[11] This information can be found also on the website of the company.

ways of working to expand the business[12]. This mindset is still embodied today by the company's current top management, which no longer consists of the original founding partners.

"We have always tried to identify and point out gaps and problems always with a view to improve (...) This is something that also characterized the way the founders acted and that we have internalized." CFO

"We do things every day to make our business grow, and we are succeeding. (...) Macroscopically if you look at the results achieved, it has been a continuous growth in profits." President

At the research and development department level, designers generally hold degrees in engineering, physics, and (in some rare cases) computer science.

Managers in the company regard designers as creative and, in some ways, as figures close to artists.

"Designers, as well as researchers, are artists and do not like to be harnessed. They want to be free to exercise their creativity and develop more and more innovative products. Since theirs is an intellectual job, it weighs heavily on intellectual honesty. It weighs a lot on the inner involvement of people who have their own ethics and their own personal concept of justice. We have so many employees who are almost "freelancers" who carry out a shared ideological mission because they have high intellectual background." Technology officer

Partly because of this, the R&D unit has always remained one of the areas where it is most challenging to implement new control systems. Still, another critical difficulty also concerns the unpredictability of the projects developed in this area. Estimating costs is sometimes difficult precisely because, as designers are "experimenters," it is not always certain that the developed prototypes actually translate into a product marketed by the company. Furthermore, the estimated development times are not always respected, leading to an inevitable variability also in terms of costs.

[12] This element also emerged from the informal and unscheduled meeting with one of the company's founding partners who, although retired, continues to visit the company frequently. The individual showed pride for the growth the company has experienced and said that he has always shown attention to elements related to business management and competition, seeking to grow his company. With the management turnover, he also ensured that the "spirit and mindset" of the founding partners continued to be represented in the company.

"We used to say we need 100 [Euros], but then maybe we end up getting 300. It's hard to predict. The project is finished when it's finished, not when the designer makes a shapeless thing that's fine for him but useless for the client, who would never take it with his own hands." Technology officer

To remain competitive and meet customers' needs, the company must make significant investments in both R&D and inventory. The products offered must be increasingly innovative because otherwise, there may be a risk for the company that customers will turn to competitors' products.

"*Those who do physics experiments are always on the cutting edge and conceive the coolest tools. We are sometimes asked things that leave us dumbfounded. But if we backed down from their demands, we would disappear. We work in a challenging sector*. "PRESIDENT

At the same time, these research tools often have a rather long life span, which could be around ten years. Therefore, the company has to incur significant warehouse expenses in order to maintain spare parts and make repairs for products that may have been out of production for years but are still in use among researchers at a certain institution. In addition, another issue affecting inventory expenses is the difficulty in using the same raw materials and components for different products. A single product line often employs specific materials and components that cannot be used for other lines.

"It's not like the margin expands with a magic wand if you can sell new products that have much lower costs. The moment the demand for a new type of product comes in, a push is immediately created on the marketing side to try to understand how the market might take up that type of development and whether there are similar needs. The new production lines bring with them a whole increase in structure cost and financial fixed assets related to inventory. Here it is impossible that from today to tomorrow you can sell with a margin twice as high as in the past. We have many products that are very different from each other, and even the subparts can be different, we have those for aerospace, then we have the electronic devices for synchrotrons and then the spectroscopies. We have a big stock immobilization that we have always tried to understand, scratch and analyze, but we finally gave up, achieving peace of mind." PRESIDENT

Price competition, on the other hand, is scarce. Basically, only in very particular tenders, which are rarely called, can there be some competition related also, but not exclusively, to the

lowest price bid. After all, the company always refers to the cost of production to determine the price at which the products are to be sold without looking at what the prices are in the market.

There are Chinese companies that offer some products similar to CAEN's at lower prices, but they usually fail to be a true menace to the company. The company has built a highly defensible name and brand that are synonymous with quality and reliability, both of which are essential factors for the target market.

"There is the virtuous incentive to sell a lot of stuff and take advantage of economies of scale, but there is a much bigger incentive to make things of value. In the end, volumes are difficult to increase because we operate in a niche. If we didn't have this added value of the brand, we wouldn't have satisfactory margins." President

5.2 Brief description of the implementation of the management control system

According to the head of the administration and finance department, the first step toward the development of management control systems was the start of the project to implement an ISO 9001 certification. In order to obtain this kind of certificate, the company needed to track better the performance at the R&D, production, and delivery level to satisfy the minimum quality standards required by ISO 9001. The necessary training to obtain this certification also made it easier for managers to identify the areas and elements that needed to be monitored. In fact, the first non-economic-financial indicators were closely related to technical aspects (number of defective products, delivery times, repair times, etc.) and the concept of quality. ISO 9001 helped the management to understand that these elements had to be monitored because they produced a significant impact on customer satisfaction and the success of the strategy pursued by the company.

"At the level of our experience, what was winning was the training we received from ISO 9000. It gave us a mental shape. This mental shape that I acquired allowed me to ask myself questions when I found myself overnight dealing with the economic-financial and strategic side even though I had done law at the university and liceo scientifico[13]" CFO

[13] *This term is hard to translate in English. It's a secondary school focused on scientific subjects*.

At that time (i.e., fifteen years ago), certifications were just beginning to become a required and valued element in the calls for tenders in which the company participated. The first input toward the adoption of the new system came from an outside consultant. As the CTO said, *"a historical consultant from CAEN had come, offering to help with the transition and trying to stimulate CAEN toward this venture."* The initiative was first embraced only by one of the company's founding partners, who believed early on in the usefulness of certification to improve the company's management and performance and enhance the company's reputation with potential customers.

"*There was one of the three founding partners who was kind of pulling the strings and took this quality aspect to heart. So It was carried on for the first 4 and 5 years, and then came the CFO."* CTO

A new hire with an engineering background was also brought on board of the project. The project was also carried out by introducing this already-known consultant into the company, who provided a great deal of support in terms of knowledge and facilitated the development of an action plan. To sum up, the leading proponents and managers of the project were the partner who first took the initiative, the consultant, and a newly hired engineer who would later hold managerial positions in the IT function.

I basically started this project together with this partner. I was newly hired. There was perseverance from this partner, who had enough clout at the time. He was very present in the company. The consultant was quite fierce as well." CTO

Although the company initially lacked the knowledge and know-how, some managers rather perceived from the beginning the need to obtain ISO 9001 and, consequently, to develop a management control system based on the analysis of financial and technical measures within the company. As this citation from the CFO shows, the decision to implement a management control system was made in order to address the existing issues the company was experiencing at the level of production and delivery processes:

"Their introduction did not have an end in itself. Every time there was a problem with a product that stopped the production chain because maybe a component was missing or the assembler had made a mistake, or it was poorly designed and did not pass the testing specifications, there was a total stoppage. This led to a delay in delivery to customers, who were not happy, there was image damage and a delay in billing. In addition, there was then all the work

the whole company had to do to fix the problem. However, the whole implementation process was an immense amount of work and required a lot of time." CFO

There was widespread awareness of the need to address these issues. As the CTO claims, there had been years of debating to find a satisfactory and commonly accepted solution:

"Let's say we did it because we had to do it. We knew about these problems, and the management had been debating this for several years, and we were trying to reach an achievable improvement. (...)When we said let's start doing something, there was constant complaining and arguments among colleagues. There was very little willingness to accept change." CTO

The introduction of ISO 9001 and a management control system was accompanied by a series of major structural changes affecting the company. The very idea of dividing the market by geographic area and assigning the presidency of a single area to each sales manager was developed at that time.

"We decided to introduce a system to track sales, and from there, we then decided to develop a real budget. The function said it would be able to determine the orders acquired from year to year in various countries. This resulted in the company itself evolving to create a presidium structure for various countries. There are people from marketing and sales who have responsibility with respect to sales performance or maintaining relationships with the distributor in certain or a country." CFO

The company moved within a few years from having a management control system related only to sales to a system, based on the budget tool, to a PMS that would track all the company's expenses in detail, together with some non-financial indicators[14].

Although the company enlisted the help of an external consultant, it was necessary to acquire skills not previously possessed since, as mentioned above, even those managers who would later make up the administration and finance area had no economic or managerial training. The CFO herself had to learn how to design and use these kinds of tools effectively. Identifying and assigning goals to be achieved was a trial-and-error process, also because it was hard to identify targets for every single individual that actually reflected the primary purposes of the organization:

"Each person within the organization has their own goal, and we were trying to balance them. There was an attempt to give each manager a target related to a higher goal of the company.

[14] In the next paragraph the features of this system are explained with more detail.

Especially in the beginning, however, it wasn't easy. We realized on our skin that if, for example, you give a salesperson a goal to make 3 million orders or turnover, that person starts giving discounts to everyone, and so he reaches the result, and I have to give him the bonus anyway, but by doing so, we don't achieve the profit goal at all. We had to experiment with several indicators before we understood the most useful ones for our goals." CFO

At first, even the proposal to introduce a control system was not taken up enthusiastically by everyone. At the highest hierarchical levels, some managers of the R&D and production thought that the system could not be effectively introduced and used in the company, or at least in their specific areas. The researchers were also resistant because they were afraid that these kinds of control would limit their freedom of action and creativity. There was also a fear that the introduction of the new control systems and ISO 9001 would result in increased costs, and the progress of the work in the early days was kept somewhat under wraps. Because of this, the development of the management control system began without immediately seeking widespread involvement for fear that there might be rejection. It is true, however, that in Italy at the time, considerable government funding was dedicated to the adoption of ISO 9001 in order to push companies to introduce it. Caen itself was able to take advantage of this additional funding. The presence of these funds facilitated the adoption of ISO 9001 and, consequently, also of the PMS needed to monitor the fulfillment of quality requirements, which would later be further expanded and improved.

Nevertheless, with the arrival in the company of a new partner-owner who would later serve as CFO, the project of implementing the management control system and adopting the ISO 9001 certificate finally got underway.

The company then gradually implemented the system in different areas of the organization with the ongoing support of the consultant and the people who initially supported the project.

Soon the possibility of having a whole range of previously inaccessible information began to convince the management of the usefulness of the initiative.

As the following citation from the CTO shows, there were some doubts about implementing the tool when the implementation process started.

"There were some unhealthy ideas in the beginning, especially on the designer side. On their side, they proposed we do two companies: the one that does research does whatever they like, and the other one that does the manufacturing and sales introduces the new system. But in the end, it

was never questioned to abandon it. It's one of those roads that, when you start down, it is hard to leave. Partly because you've done the work and partly because of the benefits you actually see." CTO

The presence of benefits associated with the change favored and facilitated not only the completion of the project but also the further evolution and expansion of the system put in place:

"It allowed us to manage production costs and calculate bills of materials in a decent way, whereas before, it was not possible. It allowed us to create a real link between the administrative side and production. We started with the loose bridle, but from there, many things started, and more evolved dashboards for different areas were born." CTO

Without the introduction of the management control system, among other things, obtaining ISO 9001 certification would not have been possible because there was no system in place to monitor and manage performance to meet quality requirements. This same certification, only a short time later, enabled the company to win a major tender with CERN. At that point, all opposition and obvious resistance to the system was finally extinguished. As the president explains in the following citation, using the COVID vaccine as a metaphor, the presence of non-ambiguous and visible benefits was actually the element that finally dissipated all the skepticism related to the implementation and use of the system:

"As the vaccine gave the evidence that it works, that thing there allowed us to move forward. Due to this, CAEN 2.0 was born, and from there on, there were even further small improvements. It allowed us to convince the most skeptical. Without the results related to the pandemic, there would be many more vaccine skeptics, instead, there is evidence. The company quickly made a big leap forward." president

This is also supported by the CTO, who acknowledges the benefits of the system:

"We would not have successfully pursued certain initiatives and challenges without this system. Sometimes it allowed us to go through them just with ease. It takes a certain organization, a certain internal structure." CTO

The new dashboards of indicators related to the performance measurement tool used in the company were being introduced simultaneously for all managers in the same area, but the rate of adoption differed from manager to manager. Although the usefulness of the tool has been gradually recognized, its actual adoption by individuals did not happen this quickly. To date, some managers still use the system very little and do so only when they are forced to.

"The problem is not at all IT-related as one might think; by now, these tools are extremely intuitive and user-friendly. What I realized is that it is really a problem of working method and mindset. It is no coincidence that those people who have a little more difficulty are often, let's say.... a little more âgé" Sales manager

On the other hand, some individuals already use the system abundantly, and it has become part of their routine:

"Now, many people panic if the indicators are gone. Everyone wants to see them. Sales managers, for example, are always very interested in their indicators because, through them, they can see if they are doing well and what should be improved. I also think that everyone gradually understood that it was not a matter of stiffening the company but of finding a healthy compromise between lassez-faire and control. Some indicators such as those related to incoming orders, are almost always of interest to everyone. It is an element that stirs great interest. The sales manager is typically always there to update the data on the screen day by day." CTO

To make this transition even easier, the company is continuing to hire new, young, inexperienced staff so they can embrace and learn how to use the new tools more easily.

It may be interesting to mention that there are also some realities where the system has been embraced with absolute ease. In fact, Caen purchased during this period of continuing transition a small company in the United States that became CAEN Technologies after the acquisition. This small business directly handles sales for the U.S. and Canadian markets, as well as providing service and repairs. This subsidiary already possessed relatively advanced control tools, even more than the ones CAEN wanted to adopt, and a rather developed CRM system. In this case, the adoption of the systems promoted by CAEN took place without any particular problems.

5.3 The management control system at CAEN

The management control system in CAEN is composed of:

- Organizational structure
- Budget & Cost accounting system
- Dashboards of non-financial indicators through the use of ERP systems
- Clan control
- Targets
- Reward system
- Values

We emphasize that the system present in CAEN meets the requirements set forth by Franco-Santos et al. (2012) that a management control system must have in order to be defined as a contemporary performance measurement system. As we are going to see, this system is, in fact, composed of both economic-financial and noneconomic indicators and is used to make decisions in the company. Thus, there is no purely diagnostic use of the system. Finally, the tool is also used to provide incentives for the achievement of certain targets. These targets are not assigned at the individual level but rather at the level of the team, organizational unit, or company as a whole.

5.3.1 Organizational structure & job description

Although it is not a very large organization, there is a clear organizational structure in which there is a definition of the roles played by each individual. The job description is also used to clarify what actions and behaviors each member of the company is authorized or not authorized to take. We do not dwell further on this aspect because it is not central to this thesis. Nevertheless, we emphasize that this form of control exists since individuals are influenced with respect to the kind of actions they can or cannot adopt.

5.3.2 Budget & cost accounting system

With particular reference to the tools used in the company, the primary control tool is the budget.

"A number of accounts from the chart of accounts or reclassified chart of accounts are always distributed to the various managers in the company. Everybody makes their budget and gives their "share" to the administration, where it is recomposed by the administration and is entered into the management program in a budget plan which is then checked month to month. " CTO

This tool is used to make forecasts for all major business areas. Given the particular nature of the company, the area in which the estimated costs are often difficult to achieve is, as mentioned, the research and development area. Beyond this aspect, the management can calculate the other components of the budget with a good level of approximation. At the production level, well-defined and reliable bills of materials are used. The company uses a cost accounting system that allows the calculation of contribution margins by product and market lines. The analysis of contribution margins is essential for understanding certain product lines' viability. The cost accounting system has gradually become more and more advanced, being able to break down all the different cost components with a fair degree of detail.

The type of budget used can be defined as an "evolved" rolling budget. The budget is reviewed monthly and updated quarterly, always maintaining a fixed time horizon of one year and a half, and forecasts are regularly adjusted based on what is done. Corrective actions are taken when the need is seen, and a fixed time horizon is always maintained.

Each business area uses several secondary dashboards, which go into the corporate budget.

In other words, individual managers are then responsible for collecting the financial data and budgets for their area, which then go to make up the corporate budget used at the administration level.

5.3.3 Dashboards of non-financial indicators through the use of ERP systems

Along with the budget, in all the different organizational units, there are a series of technical indicators of non-financial nature that support decision-making processes. The technical indicators used in the company are aimed at analyzing customer satisfaction at a strategic level. Some examples are the number of defective products, delivery times, repair times, number of support and repair requests, the time required to make an offer to the customer, the number of orders, time to give a response to a specific request made by a customer[15], the number of cyber-attacks suffered and the number of computer and machinery malfunctions. In the company, it was not conceived and thought necessary to implement specific indicators, perhaps connected to the administration of interviews or questionnaires, to express the level of customer satisfaction. This is because the company's customers look specifically at certain elements that the organization can directly monitor, such as the ability of the product to meet their specific requests, its durability, the price of the products, and the delivery and repair time. In the case of lost tenders, the company also keeps track of why they were lost.

In particular, the company manages the various information and indicators by resorting to an ERP system, which allows the managers of the different areas to extrapolate the indicators of most interest to them. For example, at the sales manager level, a CRM system is employed. This system provides the individual sales managers with all the useful information to guide their actions and is directly connected with the management control system used at the administration level. This

[15] We remind that sometimes the company finds itself having specific requests from customers and, therefore, having to make assessments of convenience and feasibility with respect the products requested by the customer.

system consists of a series of dashboards of indicators that regularly monitor customer satisfaction through proxy indicators (delivery time, delivery of defective products, repair/replacement time, the response time when a query is opened, etc.), the turnover generated, and the production and delivery costs. The latter, in particular, are regularly studied in order to define the most suitable selling price. The sales managers' dashboards are also structured to keep track of which orders or requests the company actually manages to fulfill, those it manages to partially fulfill, and those it fails to fulfill. In the event that an order is not fulfilled, the company keeps track of why, as well as recording what the other competitors have done and whether that specific order "missed" by the company is instead being fulfilled by any of its rival companies.

The results achieved are then discussed through meetings organized by senior management in order to understand where the company is going and what can be done to improve organizational performance. It is also evaluated whether the choices as they are being made are yielding the desired results or whether corrective action needs to be taken.

"We are all aware of what was planned and where we got to. Whether mistakes have been made by taking a wrong fork in the road or whether we need to get back on the right track and so we have established this habit of having periodic meetings more to manage performance than to simply measure, review indicators and plans, and so on..." CTO

At the level of production, different software is used in order to keep track of the production times, the number of defective products, the production costs, and the capability to effectively fulfill the orders that come from the marketing and commercial units. The company is currently considering further development of the system in order to include indicators also related to sustainability. Indeed, in the calls for tenders in which it participates, it is becoming increasingly important to acquire an ISO 140001, and this would involve monitoring a whole series of elements at the production level that have not been analyzed for now.

5.3.4 Clan Control

Another interesting element to consider is the type of control the company has decided to exercise at the individual level. Although targets have been assigned regarding timelines, meeting compliance and quality standards, and adherence to certain cost levels, there is still no close monitoring of individual actions taken by employees. Furthermore, at the level of the designers, the kind of control that the management decided to perform is quite bland, as it is very difficult to identify specific targets to assign. The products they develop are often different from one another,

it is difficult to establish development timelines in advance, and consequently, costs also have some considerable variability. Too tight control of individuals' actions, in addition to not being willingly accepted by "researchers" and developers in the company, could actually end up affecting their freedom of action and, thus, creativity. After several discussions about the possibility of implementing a system to better monitor the actions of individuals, management decided to maintain loose control. In this case, what the president said in the following quote seems significant:

"The fact is, how they manage their time, we don't control it, and there is no point in doing so. We work in a company made up of brains, the important thing is to give ourselves achievable goals at all levels. We have always believed that this is a winning approach. We don't ask to clock out. We ask just to give notice if you are not in the company as a matter of insurance if you get into a car accident. Nobody checks you if you take three breaks or stay 20 minutes or 40 minutes at the bar." President

In addition, in introducing the new system and assigning targets to be achieved at the level of the company and organizational units, management has always tried to take as few authoritarian and punitive approaches as possible. Even when a problem emerges in terms of performance, management has attempted to avoid having to take direct action against the individual employee or manager. To do this, the founding partners sought to imprint a "clan" control among employees, where employees themselves try to point out to their colleagues the mistakes made and any critical issues, gently urging them when necessary to operate differently. As the CFO explains:

"It was determined to give motivating targets, not military or punitive approach […] we try to make the colleague be the conduit, preventing the boss from making the calls. There is much attention to how things are communicated. If a colleague is not doing his or her job well, the coworker tells him or her directly by quietly calling him or her back. We avoid the boss calling back. This approach comes from the mindset of the founding partners, and management has internalized this approach and made it their own. (…) There was a commitment to making everyone understand that everyone contributes." CFO

5.3.5 Targets

Along with dashboards that keep track of factors of a more qualitative nature, a more classical system based on the empowerment of the management through the assignment of targets to be

achieved is also present. The organization has an organizational chart in which a careful division of tasks assigned to each person emerges.

The targets given to each organizational unit were purposely chosen so as to give each unit manager the perception that their own contribution is critical to the realization of the bigger picture while avoiding giving targets that are overly challenging and difficult to achieve. At the same time, when there are gaps and problems, management has tried to always act with a view to continuous improvement, giving constructive criticism when strictly necessary. Among the effects of this change, according to management, there has been the acquisition of greater awareness by all people in the company of what levers are available to them and the company as a whole to achieve desired results.

" We have always taken a motivating approach. At the management level, we have been committed to making everyone understand that everyone makes a contribution. We explained that the company works like a clock; if one doesn't turn a small, seemingly insignificant cog, it all wobbles. Everyone understood the importance of their work for the whole company, and everyone is motivated to improve and monitor their own and others' performance". CFO

5.3.6 Reward system

Concerning the use of incentives and the awarding of bonuses, there are different approaches based on whether external parties or the company's internal staff are involved. As mentioned, the company often refers to intermediaries to sell its products in specific geographic areas. Exclusive dealers, with whom the company, therefore, maintains a close relationship, have been required to use the same CRM system, mentioned before, employed by internal sales managers. In this way, the company can analyze the performance of external parties in detail, which is rewarded by recognizing dealers with an additional percentage based on sales performance, customer growth, and customer retention. Still, most external retailers are not exclusive to the company, as they also sell other products belonging to sectors other than the one in which CAEN operates. In this case, the control carried out remains much less while maintaining a form of incentive based on sales made.

On the other hand, the incentive system is less defined at the internal staff level. Although there is the possibility of evaluating the performance of individual managers, the top management prefers to maintain an evaluation that is more qualitative and subjective and not based solely on the use of numbers. In fact, it may sometimes happen that the top management feels that certain

individuals have performed well even when not all targets have been met, reserving the possibility of awarding rewards anyway. Then there are cases where an objective assessment is complicated, at least with the information systems currently available to the company. For example, managers operating abroad rely on intermediaries for sales to end customers. For this reason, it would be difficult to hold these internal CAEN managers directly accountable for the level of sales achieved. Since sales managers do not have 100 percent control over the variables through which their performance is evaluated, top management has decided to use more subjective evaluation methods yet still informed by the numerical values achieved.

Finally, the company prefers, where possible, to give shared rather than individual awards, always trying to generate this sense of community and belonging. Nevertheless, there were occasions when due to unsatisfactory performance, the company was unable to provide rewards even when staff had worked well. In these circumstances, top management engaged in transparent communication activities to make employees understand the problem. The company always pledged to cover these lost earnings later, as soon as the crisis situation had been resolved. According to management, it is because of the strong sense of belonging and identification with the organization that there have never been any protests to how the awards are given. In fact, it has never happened, even in times of trouble, where the management gave no bonuses, that someone complained that they did their job well and still deserved an award.

"At the production level, we can look by order book who did better or worse, but in the last two or three years, we still managed to secure uniform rewards. The results have been good. Some have excelled more and some less, but no one has done badly, and that has made things easier. They all seem quite happy with our approach." CSCO[16]

5.3.7 Values

Although the company is made up of "creatives," one element that has played in favor of the implementation of the system, according to management, is the type of organizational culture prevalent in the organization. As stated in the section about the description of the company, since its inception, the organization has been growing and performance-improvement-oriented, thus creating fertile ground for the introduction of performance management and improvement-oriented changes. The company has always tried to make everyone feel part of one big family, giving out,

[16] Chief Supply Chain Officer

as said before, rewards at the team or whole organization level and organizing regular social events to try to increase the level of involvement. In addition, the management has always believed that sharing all available information and acting transparently is vital. Efforts have also been made to make corporate values, and goals felt as shared. The management has tried to pursue a leadership-by-example style, thus giving the perception that the values communicated were actually lived and embodied firsthand by the company's leaders. At the same stage of learning new ways of working, there has always been an effort to share what has been learned with other members of the organization.

"In addition to setting up the indicators and whatnot, it was making sure that everyone knew the goals and issues. When I learned something, I transferred it down to others as well. We transformed this company. (...) From a business run in an improvised way by technicians who had no idea on how to run a business to a more entrepreneurial way where performance targets and management control became everyone's bread and butter." CFO

"There is a certain attention and sensitivity from us due to being part of a certain ecosystem." CSCO

5.4 The change process

5.4.1 Pre-design

The table[17] below lists the factors that played a role in the pre-design[18] phase and were identified with the support of the framework of Stouten et al. (2018). It is then indicated in which step(s) of Stouten et al.'s (2018) framework these factors appear and in which step(s) of Bourne et al.'s (2000) framework they appear to have played a significant role. Finally, a classification of these factors through Kasurinen's (2002) framework is also provided so that the effect each of these factors had on the management accounting change process can be better explained. As can be seen in this table, some factors appear in more than one stage of Bourne et al.'s (2000)

[17] It is basically a summary of the tables built during the data analysis.

[18] This kind of table was also used for each of the following sub-sections, for each step that characterized the implementation process.

framework. However, these factors are discussed only once to avoid redundancy, at the stage where they appear to have played a more significant role.

Factor	Stouten et al. (2018) step	Bourne et al. (2000) phase	Kasurinen (2002) framework	Effect of the factor
Awareness of general issues affecting the organization	Organizational diagnosis (1st step)	Pre-design	Motivator	Generally favored the perception of a need for change/increased sense of urgency
Awareness of specific problem at the top management level (unsatisfied need for better managerial control)	Organizational diagnosis (1st step)	Pre-design	Catalyst	Favored the development of the need for introducing a better MCS/increased sense of urgency
Belief that the reasons for change was legitimate	Organizational diagnosis (1st step)	Pre-design/*design*/implementation	Motivator	Generally favored acceptance of change

Table 4: Enabling and hindering factors identified in the pre-design phase

As we can see, these factors can be traced in the first step of Stouten et al.'s (2018) framework and played a key role mainly in this "pre-design" phase. In the case study examined, it can be established that the change process started, as the change management literature and Stouten et al.

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(2018) framework also suggest, before the actual start of the system design and development phase. The development of an awareness of the need for change proved to be, in fact, a prerequisite of paramount importance at this stage. The implementation of the management control system, which later gradually became more complex and multidimensional, was initiated first of all because there was a strongly felt perception in the company by a part of the administration of problems concerning the processes of production and product delivery:

"*Their introduction did not have an end in itself. Every time there was a problem with a product that stopped the production chain, because maybe a component was missing or the assembler had made a mistake, or it was poorly designed and did not pass the testing specifications, there was a total stoppage. This led to a delay in delivery to customers, who were not happy, there was image damage, and a delay in billing. In addition, there was then all the work the whole company had to do to fix the problem. We were receiving complaints from our customers that needed to be resolved." CFO*

Unlike what the main prescriptive models of change management and the Stouten et al. (2018) framework suggest, however, there was no real formalized *organizational diagnosis* aimed at assessing the situation the company was in. Indeed, the literature on organizational change suggests that conducting an assessment related to the situation in which the company finds itself promotes change primarily for two reasons. On the one hand, identifying problems or opportunities to be seized motivates management and employees to introduce change. On the other hand, it allows refining and establishing the type of innovation that is most likely to meet actual business needs. In this case, the perception of problems in the company was already widely known and visible before everyone's eyes, and this still contributed to the development of an awareness of the need to introduce change that would solve the situation. Stouten et al.'s (2018) model is not designed to be applied to specific realities and does not consider the company's size. Many of these models have also been developed empirically from the analysis of implementation processes in large companies (e.g., Kotter, 1996; Hiatt, 2006). Since this is a not particularly large company, it appears that the management could have an idea of the performance of the various business areas even without the use of evolved management control and information systems or the conduction of specific assessments, as explained by the CTO:

" We knew about these problems, and the management had been debating this for several years, and we were trying to reach an achievable improvement." CTO

Therefore, the management could still identify major problems that plagued the company and the various business areas. Even in the absence of this formalized moment, the development of awareness of the presence of issues and the need for change has proven quite important, as the change management literature suggests. Indeed, as the CTO mentions, "*Let's say we did it because we had to do it."* The effect of this type of factor on the initiation of the change process can be defined according to Kasurinen's (2002) model as a *motivator*, favoring, in a general sense, the promotion of change. In fact, the presence of such problems prompted management, which had always been characterized by the pursuit of continuous improvement in business performance, to seek a solution and, thus, some form of change.

Nevertheless, the company also had problems with its existing management control tools, which did not meet the company's control needs:

"Previously, one would navigate the economic-financial part, on the feel-skin, and sometimes arrive at the bottom of the balance sheet with surprises, perhaps bad ones." CFO

Prior to the introduction of the system, there was no use of management control systems to monitor the company and make decisions. As the following quote from the president shows, there was no use of these systems to guide the company:

"There was a disconnect between the operating budget and everyday life." President

These problems acted as a *catalyst* (Kasurinen, 2002) essential to produce change, as explained by the CFO:

"This gave rise to the need to set up control tools that then ended up inside the "famous" dashboard of quality indicators that would allow the company's economic-financial performance to be kept under control." CFO

In other words, in addition to problems related to defective products and delivery time, which created a motivation for change in a more general sense, there were also issues of a more specific nature that acted as a *catalyst* to introduce an appropriate management control system.

In the absence of a formalized assessment, managers' perceptions of the problems that plagued the company were not based on a multiplicity of information. Still, these problems were, for all intents and purposes, these problems were observed directly and firsthand by management, as illustrated by the quotes above. As mentioned before, management sometimes found itself with negative surprises when preparing the statutory financial statements. In addition, managers were aware that there were complaints from the clients related to missed delivery times, which in turn

were, due to a number of problems mentioned earlier, leading to a slowdown in the production process. These problems were well known as they had then been debated for years in order to find a solution. Although a multiplicity of sources from which to derive information is suggested as essential in Stouten et al.'s (2018) model, we were unable to observe the effect this element may have on implementation dynamics. However, we think that, given the characteristic of small companies (Heinicke, 2018), it might be necessary, more useful, and feasible in larger firms, where it's usually present a more development information and management control system for tracking all the company's processes and identifying eventually related issues.

5.4.2 Design

Factor	Stouten et al. (2018) step	Bourne et al. (2000) phase	Kasurinen (2002) framework	Effect of the factor
Leadership Commitment	Change readiness assessment (2nd step)/ Leadership Development (4th step)/Change instituzionalization (10th Step)	Design/implementation/use	Catalyst/leadership	Individuals who had the power to influence and motivate the others supported the project
The company partially had the know-how related to change	Change readiness assessment (2nd step)	Design/implementation/use	Facilitator	Facilitate the process
Some individuals had the	Change readiness assessment (2nd step)	Design/implementation/use	Facilitator	Partially facilitated the process

knowledge to manage the new situation				
Not all individuals felt the change was appropriate for the organization	Change readiness assessment (2nd step)	*Design*/implementation/use	Frustrator	Some managers and researchers became resistant to change
The necessity to gather new knowledge to effectively and fully implement the change	Change readiness assessment (2nd step)/	Design/implementation/use	Delayer	It made it necessary for the management to study to acquire new knowledge and experiment more than usual with the tool

Table 5: Enabling and hindering factors identified in the design phase

The process of implementing the PMS basically started with a *catalyst*, that is, the arrival of a consultant already known in the company, who proposed support to the company in obtaining ISO 9001 certification. As the CTO claimed, the project started when

"A long-time CAEN consultant had come, proposing and trying to stimulate CAEN toward this venture." CTO

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As seen in the quote above, this new consultant was one of the individuals who triggered the change and most pushed and supported the initiative.

In the early stages, the system design was developed through the work of a very small team of people: the consultant, one of the founding partners, and a newly hired engineer. Therefore, there wasn't a high level of participation and involvement in the beginning.

"*It was an obligation initially understood by very few in here, […]and the starters who struggled against everything and everyone. (…) There was perseverance from the partner who had enough clout at the time. He was very present in the company. The consultant was quite fierce as well." CTO*

This is because although everyone shared the need to solve the problems that plagued the production and customer delivery processes, not all people agreed on the *appropriateness* of the chosen change. This problem negatively affected the company's level of *change readiness* (Stouten et al., 2018). As mentioned in the preceding paragraph, these problems have been discussed for years precisely because there was difficulty in coming to a common and universally accepted solution. When the idea of starting the project of implementing a PMS finally prevailed, there was still no support from everyone, as can be seen from what the Chief Technology Officer said.

"Obviously, in the implementation of the system, there were many creaks and some skepticism. When we said, let's start doing something there was constant complaining and arguments among colleagues. There was very little willingness to accept the change" CTO

As we have said before, the underlying reasons for the change were seen at least as legitimate, a factor that, according to Stouten et al. (2018), tends to mitigate resistance. Still, the managers from the R&D and production department saw the introduction of a management control system as not feasible in a company composed mainly of creatives and researchers, who usually do not want to see their freedom of action restricted or controlled.

"Management was struggling to come to a commonly accepted solution, and there was much discussion. (...) Some skepticism was related to the fact that the company was made up of creative people and the feeling that control systems could not effectively be employed into their [managers'] areas of responsibility." CTO

As we have said, the perception that the underlying reasons for the change were justified acted as a *motivator* (Kasurinen, 2002) that generally favors change, already in the pre-design phase. Yet, when the change project began to be actually discussed among all of the management,

different perceptions concerning the credibility and achievability of change by a part of the management emerged, generating confusion. There was a generally shared rationale for the need to change because of the awareness of the existence of significant problems. This favored the perception of a discrepancy between the current situation and the desired future situation for the company, which is a factor recognized as essential by the literature about change management and *change readiness* (Stouten et al., 2018; Armenakis et al., 1993). Nevertheless, there was no agreement on the type of change that needed to be introduced (Stouten et al., 2018). This element acted as a *confuser* because it made it harder to identify a common objective or shared change project.

In other words, this absence of an agreement impacted the *change readiness* of the company and produced a slowdown.

"In this way, it took 4-5 years, without being able to get the system in place and certified." CTO

In particular, as the citation below shows, the management understood the potential usefulness of a PMS but also knew how hard it might be to implement it effectively in this kind of company.

"Everyone is happy on paper to have accounts, data, and processes a little better sorted and organized, but from here to introducing them is a long way off." CTO

It is not that benefits were not seen with respect to the introduction of the system, but there were doubts related to the appropriateness and feasibility of the change with respect to the company's characteristics (Stouten et al., 2018). There was skepticism because the development and production departments were composed of researchers and creatives who didn't like to be controlled. Moreover, the projects and products developed in the company were often gambles that did not necessarily bore the desired results, and it was even sometimes difficult to estimate the timing and costs of new product development.

There were also some significant cases of resistance to change from the researchers because they were concerned about seeing their range of action limited. This resistance has also manifested itself through the counterproposal of projects that had little credibility or were otherwise difficult to implement. As the CTO puts it, " *There were some unhealthy ideas in the beginning, especially on the designer/researcher side. On their side, they proposed we do two companies: the one that does research does whatever they like, and the other one that does the manufacturing and sales introduces the new system."*

The main issue concerned the fact that the researchers believed the change would end up directly bringing disadvantages to their work.

"Designers, as well as researchers, are artists and do not like to be harnessed. They want to be free to exercise their creativity and develop more and more innovative products. Since theirs is an intellectual job, it weighs heavily on intellectual honesty. (...) The researcher, by definition, in my opinion, is not a neat person. He is a bit of an artist, so the idea of the quality of meeting specifications of time schedules and so on was not well regarded. Plus, they were afraid of increased costs, difficulty in dialogue." CTO

Not seeing benefits or more disadvantages than benefits related to change is considered a factor that usually produces a strong passive or active resistance to change and can lead to a failure of change processes (Hayes, 2022; Stouten et al., 2018; Bridges, 1991). In this case, the inability to see benefits from some of the company's employees acted as a *frustrator* because it had the effect of suppressing the specific change initiative. Due to these perplexities, it was decided to initially keep the project of implementing a PMS not particularly visible. As the CTO explains, *"This was kept somewhat under wraps at first. It was not a highly publicized aspect or the flagship of the company. We got off to a slow start."* CTO. Indeed, there was no communication or sponsorship at the beginning of the development and design effort to avoid too much discussion and criticism.

5.4.3 Implementation

Factor	Stouten et al. (2018) step	Bourne et al. (2000) phase	Kasurinen (2002) framework	Effect of the factor
CFO acted as a leader and supporter of the project	Leadership Development (4th step)/ Change Institutionalization (10th Step)	Design/implementation/use	Catalyst/Leader	Unblocked the impasse the project was in and sped up the implementation process. Contributed to

				keeping the momentum.
The leadership's active support during the implementation and use	Leadership Development (4th step)/ Change Institutionalization (10th Step)	Implementation/use	Momentum	Contributed to keeping the momentum.
The implementation process enabled/allowed learning processes	Change interventions implementation (3rd step)/ Implementation support (7th step) / Experimentation (8th step) / Progress assessment (9th step)	Implementation	Facilitator	Contributed to the adoption of the systems and their improvement
Keeping track of the change progress	Progress assessment (9th Step)	Implementation	Facilitator	Allowed to keep track of the effects of change and maintain momentum
Face-to-face communication about the change through meetings	Change communication (5th step)	Implementation	Facilitator	Reduced misunderstandings. Make everybody clear about the goals and

				implications of change
The individuals responsible for the project had complementary skills	Leadership/Development (4th step)	Design/ Implementation / use	Facilitator	Favors the change
Lack of knowledge with regard to MCS and PMS	Change readiness assessment (2nd step) /	Implementation/Use	Delayer	The need to experiment more with the tools and the targets to identify the best ones

Table 6: Enabling and hindering factors identified in the implementation phase

The implementation process started before the design phase was fully completed. This is in line with what is advised by Bourne et al. (2000), who recognize that in the implementation of these types of tools, the phases tend to overlap. These kinds of multidimensional tools are generally put into operation gradually in the different business areas, and this was also the case with CAEN. So, while some dashboards were being studied and refined, others were already quite operative, with management gradually learning how to use them. The project moved very slowly until a new CFO belonging to the ownership group arrived.

"Four to five years went by without getting the project done, but with the arrival of (...) [CFO], within a year, we had the system and also the certification." CTO

This subject was convinced early on of the project's usefulness and importance, showing a strong commitment towards the new system throughout the implementation process.

"The CFO has taken the initiative to heart since its arrival." CTO

As part of the ownership, this individual had considerable influence and could use it to push a speed-up with respect to the implementation process. This person directly participated in the

system design activity by proposing indicators and trying to identify goals that could be shared at multiple company levels. Many meetings were held in order to do so.*"In addition to setting up the indicators and whatnot, it was making sure that the goals and issues were acquired by everyone."* CFO

The arrival of the new CFO proved essential in bringing the implementation project out of the impasse it was in, playing a *catalyst* role for the change project. Throughout the implementation process, from design to even the later stages, this manager maintained a strong commitment to the project, actively sponsoring it and pushing its adoption by other managers in the company. This is an important element and is emphasized in several steps of Stouten et al.'s (2018) framework, starting with the *organizational readiness assessment* step but also foundable in the one devoted to *leadership development* and the concluding step of *change institutionalization*. Because of the arrival of this individual, the project was no longer kept partially hidden; instead, there was an active effort to involve the individuals through periodic meetings.

"As the project got underway, we had weekly meetings where we discussed what needed to be done to improve the performance of our processes. We discussed problems and the improvements we were able to obtain through the management of the performance. This means pursuing quality" CTO

As a leader, the CFO would then contribute to maintaining "*momentum*" and pushing the company toward the set direction. As the quote below from the president confirms, with this person's input, management has accepted and embraced a set of previously not employed indicators to make decisions and guide its behavior and actions.

"With the new CFO, management has been able to coalesce around indicators that everyone shares in the company, and everyone is clear about the goals and where we need to go." President

Nevertheless, management did not possess the skills either to implement the control system or to acquire ISO 9001 certification. Therefore, in conjunction with developing and implementing the system, the process of learning and acquiring skills played a key role.

"At the level of our experience, what was winning was the training we received from ISO 9000. It gave us a mental shape. This mental shape that I acquired allowed me to ask myself questions." CFO

Stouten et al. (2018) suggest that management's possession of knowledge and skills related to the specific change being introduced is an enabling factor that plays a significant role early in the

process. According to the Kasurinen (2002) framework, it can be argued that possessing already the necessary knowledge is a *facilitator*: it is not sufficient *per se* to create the change, but it strongly favors it. In this case, there was no special knowledge prior to the start of work on the system. Still, the learning process, which also occurred with the support of the consultant, certainly played a fundamental role. In the meetings that were held in order to get people to participate in the progress of work and systems development, quite a few learning opportunities were created. The CFO, in particular, oversaw passing on the knowledge that was being gradually acquired through the training done in order to obtain ISO 9001 certification.

"When I learned something, I transferred it down to others as well." CFO

This allowed the development of a multidimensional system geared toward measuring quality objectives. In these phases, meetings played an important role also in making people feel involved and part of the change.

" Sometimes it's okay. Sometimes I have to go down to the lower levels to say we're billing too little, and you find out the problem. (...) There were years when I went downstairs and said guys do what you want, but this year we're not gonna make it. And we got everybody involved by explaining to everybody what the problem was" CFO

The process of learning and sharing knowledge as it is acquired is a factor considered important for the success of initiatives and facilitating change. Yet, the lack of knowledge in the early stages acted as a *delayer*, as in conjunction with the development of the system, management had to acquire new knowledge not previously possessed and without which it could not have developed and effectively used the tool to measure and manage business performance. The development of the system progressed partly as a learning-by-doing process, where the top management had to experiment to identify the most valuable indicators both to guide the actions of subordinates and to support decision-making processes:

"Especially in the beginning, however, it wasn't easy. We realized on our skin that if, for example, you give a salesperson a goal to make 3 million orders or turnover, that person starts giving discounts to everyone, and so he reaches the result, and I have to give him the bonus

anyway, but by doing so, we don't achieve the profit goal at all[19]*. We had to experiment with several indicators before we understood the most useful ones for our goals." CFO*

Along with this field experimentation, the CFO undertook to study on his own through books and training courses the knowledge related to management control and the quality concept expressed in ISO 9001.

"At the level of our experience, what was winning was the training we received from ISO 9000. It gave us a mental shape. This mental shape that I acquired allowed me to ask myself questions when I found myself overnight dealing with the economic-financial and strategic side even though I had done law at the university and liceo scientifico" CFO

This slowdown was mainly transient in nature and thus related more to purely "technical" aspects.

It has to be noted that the project was taken over by individuals who had complementary skills and aptitudes for the project's success. There was the CFO, who acquired the needed knowledge in accounting and control and had a significant influence on the company being one of the owners. There was the consultant who already had experience and training in the aspects related to quality and the requirements to be met in order to obtain ISO 9001 certification. There was an engineer who, although he had no experience in developing a performance measurement and control system in IT terms, he did have experience in software development and computer language.

"The consultant was more knowledgeable about the bureaucratic and technical aspect than the strictly technological/IT aspect. (…) then the new CFO came, and she had a different weight[20]*. (…) We were more or less a team where everybody took care of something. (…) I try a little bit to take care of the [IT] infrastructure to give the tools to the others so that it can go smoothly. " CTO*

This division of roles among actors who had different and complementary skills *facilitated* the implementation. For example, The CFO only had to deal with designing the system and identifying the most effective indicators to carry out the control activity, while the strictly IT aspect was left completely in the hands of the engineer (who later became CTO).

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[19] This is one of the most commonly used examples at the level of teaching accounting in Italian high school and university. This kind of mistakes demonstrates precisely that learning occurred directly in the field, making implementation take longer than it should have compared to people who already have a minimum of prior skills in business management and accounting.

[20] He refers to the power and influence she had in the company being one of the owners of the company.

During the implementation process, there was not much use of incentive systems, which is an element considered important in Stouten et al.'s (2018) framework and the change management literature. The latter generally suggests the usefulness of assigning goals and incentives directly linked to change and the adoption of certain behaviors that are in line with the future condition that the company aims to achieve (Stouten et al., 2018). In this case, as individual goals are not assigned, and the improvement of the company's performance as a whole is more generally rewarded, individuals can be said to be pushed only in an indirect form toward using the system in order to help produce a performance improvement.

The system put in place has a diagnostic function and is used to support decision-making processes, while it is currently used to a much lesser extent for the empowerment of individuals toward the achievement of the result (see for more on this topic Franco-Santos et al., 2012). This is because, in certain functions characterized by the use of creativity and the high rate of the unpredictability of projects, management has purposely decided not to carry out stringent control. As this quote from the president points out, controlling with excessive detail the actions of individuals is not easily realizable in this type of company:

"The system is not based on the single outcome goal but rather on the overall result. (…) The fact is, how they manage their time, we don't control it. We work in a company of brains. The important thing is to give ourselves attainable goals at all levels. " president

Certainly, the PMS provides a more accurate idea of business performance and allows the management to identify with some level of accuracy in which areas the company performs better and in which areas problems reside. However, the management generally prefers to reward everyone in the company when the company's performance is satisfactory to avoid envy and the perception of unequal treatment. To sum up, while the change management literature suggests directly rewarding people who engage in desired behaviors[21] , in this case, the reward was given in a general sense towards performance improvement and not for engaging in specific behaviors since, as noted above, the management does not believe that careful monitoring of individual actions is feasible.

[21] This can also translate into achieving certain levels of performance or numerical targets as reported in both Stouten et al.'s (2018) model and Hayes' (2022) classic change management handbook.

Thus, it can be said that, although in a somewhat indirect form, the incentive approach is still used to motivate staff to do better and, therefore, to regularly use dashboards to monitor and manage performance.

"We then gave rewards aimed toward performance improvement. The rewards were generally given to everybody in the company and were not related to the individual's performance. (...) A reward is given for performance improvement. The company has, at the top management level, put in place from words to deeds, and when there have been good budget results, there have been rewards for everyone. We try to incentivize people to work for the organization and let them know that if they work well and the organization is profitable, they also gain." CFO

Thus, it can be said that in the view of Kasurinen's (2002) framework, this general push toward improving business performance played a role as a general *motivator* of change in that it favored any change that was perceived to improve business performance, which is usually the main reason for introducing any organizational change. In addition, it has also prompted single individuals to actively use the tool and indicator dashboards to manage performance so that they can achieve increasingly satisfactory results.

Although no individual awards or targets were given, goals were made explicit within the meetings that had to be achieved at the company and team levels. In fact, to achieve ISO 9001 certification, it has become necessary to meet specific requirements. Yet, these targets were not given with a military approach; there was always an attempt to make the change ownership feel shared among different people.

"It was determined to give motivating targets, no military or punitive approach […] we try to make the colleague be the conduit, preventing the boss from making the calls. There is much attention to how things are communicated. If a colleague is not doing his or her job well, the coworker tells him or her directly by quietly calling him or her back. We avoid the boss calling back. This approach comes from the mindset of the founding partners, and management has internalized this approach and made it their own. (…) There was a commitment to making everyone understand that everyone contributes. "CFO

This approach geared toward motivating people to do better translated into trying to provide a reward for people even when their efforts, however obvious, did not result in better financial or non-financial performance. This is confirmed for us by this quote below from the president.

"Even in the absence of achievement of the numerical goal set, if you feel that the organization has acted and worked well, we still give the rewards to push to continue to do better. We worked on common results and goals. The system is not based on the single outcome goal but rather on the overall result." president

Dwelling on the theme of participation and involvement, the leadership was aware that while they had the power to push people toward the adoption of the new system, a satisfactory degree of acceptance and use of the system would not be achieved without trying to make individuals feel involved during the implementation process. Management was convinced that for change to take place with a satisfactory degree of success, it was necessary for individuals to accept the change. To do so, as the following citation shows, the management as tried to favor the perception of ownership of change by making people feel like the decisions were all taken together and shared.

"I always went as softly as possible and tried to share the choices and make a shared decision or at least make it seem like it was their decision and then put it into action. " CTO

Participation and involvement are generally regarded as important factors in the framework of Stouten et al. (2018) and the literature related to PMS implementation (Bourne et al., 2002), both to improve the system and to foster acceptance of it. As the following citation show, being the company not particularly big, it was easy to involve everybody and ensure that communications about the project and the implications of the change reached everyone:

"The climate was quite participatory. We were not more than 50-60 people, so everyone knew everything, and therefore everyone was very involved." president

This participatory climate is still present today, allowing information to travel with ease and create involvement in the various projects the company decides to initiate:

"There is a climate of participation and involvement. "CFO

Participation and involvement during the implementation process played the role of a *facilitator*, as while it was not essential to the implementation of the system because since the CFO was an owner, she had the power to impose change. Still, it promoted acceptance of the change in those managers who were more reluctant and on the "creatives" side.

"Slowly, it was understood by everyone that quality is needed if you do it right with a capital Q. (…) Everyone understood that it takes a certain organization, a certain internal structure that otherwise you don't know how to do. Both from an organizational and documentary point of view. " CTO

The meetings, in addition to trying to create involvement and share knowledge as it was acquired, were also aimed at verifying the progress of the work. As the system was implemented, new goals and indicators that would make up its component dashboards were identified.

"We had and still have frequent meetings involving interested people where at least the status of the works is shared. We are all aware of what was planned and where we got to. Whether mistakes have been made by taking a wrong fork in the road or whether we need to get back on the right track and so we have established this habit of having periodic meetings more to manage performance than to simply measure, review indicators and plans, and so on (...) We see how to continually review and see how the project is progressing. We make everyone aware of the status and any deviations," CTO

In this way, the individuals composing the company became aware of the progress that the change process was achieving and that it was actually becoming more and more concrete.

This element may have acted as a *facilitator*, making it possible for individuals to understand better the progress of the work and the contribution they, too, were making to achieving the desired results. As the following quote from the CFO points out, there has been and still is an effort on the part of management to make it clear how each individual contributes to the success of projects and the company as a whole.

"We have a commitment to making everyone understand that everyone makes a contribution, like a cog in the clock. If one does not work, that insignificant little cog will wobble everything. Everyone has understood the importance of their activity overall, everyone is motivated to improve and monitor the performance of the others." CFO

Finally, we cannot determine the importance of organizational history from this case since the company is new to this kind of change. Indeed, this was the first implementation of any management control system, and we could not assess the effect that past successes or failures in introducing a similar change might have had on this type of process. The impact that stress level may have is also something that could not be observed, although there were no reasons to suggest that individuals in the company were facing a particularly stressful situation. The company has always fostered a relaxed atmosphere, avoiding putting undue pressure on the employee, and was not experiencing a crisis situation.

5.4.4 Use

Factor	Stouten et al. (2018) step	Bourne et al. (2000) phase	Kasurinen (2002) framework	Effect of the factor
Delay in routinization/ adoption/diffusion/spread of the system	Progress Assessment (9th step) / Change institutionalization (10th step)	Implementation/use	Delayer	Delayed the diffusion and widespread adoption of the system within the company
Achievement of small wins/presence of visible benefits gradually obtained with the gradual adoption of the tool	Experimentation (8th step) / Progress assessment (9th step)	Implementation / Use	Momentum/facilitator	It allowed keeping momentum and favored acceptance among skeptics of the project.
Organizational identification	Implementation support (8th step)	Design/implementation/use	Motivator	It favored the

				acceptance of the change because it brought visible benefits to the company

Table 7: Enabling and hindering factors identified in the use phase

In relation to the actual use phase of the system, which reflects the situation the company is in now, the implementation has been successful, according to the management. Top management regularly uses the tool for decision-making, and the dashboards are also used by production and sales managers. Regarding sales managers, not everyone still uses the PMS with the same frequency and regularity, but it is still a process in the making.

"The problem is not at all IT-related as one might think; by now, these tools are extremely intuitive and user-friendly. What I realized is that it is really a problem of working method and mindset. It is no coincidence that those people who have a little more difficulty are often, let's say.... a little more âgé. (…) Before, there was no such system, so there is still a difficulty on the part of some to make it an everyday thing. (…) New people clearly adopt it easily right away because they are young figures with little prior experience or habits to change." Sales manager

The presence of subjects in the company, often of a certain age, who have grown up in the company and often don't have different past experiences in other organizations, has caused a slowdown in the spread and adoption of the system. This phenomenon has thus acted as a *delayer*, not in fact constituting a real permanent impediment toward the initiative.

As the implementation proceeded and the system began to be used first by top management and then by the various related business units, the company could see visible advantages and benefits associated with the change being implemented. ISO 9001 certification itself, which would not have been possible for the company to obtain without implementing at least part of the system, was obtained before the implementation process was fully completed.

"Some benefits were there. The funding was there, and once you start, usually… when you embark on such a virtuous path, it's hard to go back, it gives you advice related to common sense even thinking about it. (...) The "artists" side has seen advantages in it over time.(…) I also think that everyone gradually understood that it was not a matter of stiffening the company but of finding a healthy compromise between laissez-faire and control" CTO

"As the vaccine gave the evidence that it works, that thing there allowed us to move forward. Due to this, CAEN 2.0 was born, and from there on, there were even further small improvements. It allowed us to convince the most skeptical. Without the results related to the pandemic, there would be many more vaccine skeptics, instead, there is the evidence. The company quickly made a big leap forward. (…) We have something that comes back to us and tells us that we are working in the right way, it comes back to us. " president

Obtaining these small wins proved essential for maintaining *momentum* but also for conclusively convincing those individuals who were skeptical of the system's implementation and the management to continue further with this project. In this case, this factor seems to have played a *facilitator* role, having been essential in ensuring that the project was completed and the system further developed and expanded. The presence of visible benefits over time clearly also had a positive impact on the durability of the change since, as could be seen from the quotes seen so far, management remains quite convinced of its usefulness and the need to continue using the PMS regularly.

Another factor considered significant in the Stouten et al. (2018) framework and which can be found here is the identification of the individuals who make up the organization with the very company of which they are a part of.

First, there are quite positive inter-firm relationships, according to the CFO.

"We have good inter-company relations, increasingly innovative products and have higher margin. "CFO

There is a widespread focus on performance improvement, which remains an essential element shared by all[22].

[22] We recall that it is an element that comes directly from the mindset of the original founders of the organization and therefore has been transmitted over time even as managers and employees have changed.

"There is this generalized climate anyway where there is a focus on wanting to do well for the company, contributing. This creates perhaps a particularly favorable environment for change" CTO

During the crisis years, management always tried to make individuals aware of the issues that had led to unsatisfactory results, even when those issues were not dependent on their actions.

"There have been years when I've come down and said, guys do what you want, but this year we can't make it. And we involved everybody by explaining to everybody what the problem was, we also had to put people in solidarity, but we gave them back what they didn't get in the following years because it wasn't their fault, and we tried every year to bring a budget that was decent "CFO

Management in order to strengthen the sense of belonging to the company, has also, as mentioned before, tried to make sure that the individual goals of the various members of the company were always aligned with those of the company, providing incentives based on the results achieved by the company as a whole.

"We try to incentivize people to work for the organization, let them know that if they work well and the organization is profitable, they also gain." president

Always striving to strengthen the sense of belonging, the company has always tried to create moments of sharing outside of work.

"Before Covid, there were fixed events like the CAEN summer party where the company bore all the costs. Not only the company came, but also families and children came to familiarize laughing about the work. It was so good that even customers asked to attend. We also had a monthly date. On the last Fridays of each month, CAEN paid the costs at the café for everyone to be together. "As we grow, we try to maintain good inter-company relations and maintain a good perception outside the company by customers." President

This identification on the part of employees with the organization seems to predispose them to accept those changes that result in benefits for the company with which they identify (Stouten et al., 2018). Resistance was, in fact, overcome the moment the benefit associated with change was perceived for the organization more than for the individual. As we have said before, the management and the employees recognized these benefits. Moreover, the presence of additional work related to developing, learning, and adopting the system does not seem to have been one of the main reasons for resistance in the case taken under analysis. However, it is usually recognized as a common reason for resistance in the organizational change literature.

In the use of dashboards at the level of single organizational unit level, it is allowed to make local adjustments and experiment with indicators, letting the individual generate through the use of software different types of dashboards. To facilitate this experimentation, it was administered training to improve in certain organizational areas (e.g., production department) individuals' capabilities to extrapolate, with the available data, useful indicators to meet their knowledge needs.

"We can create numerous types of reports and masks that can help with these things. We are doing a BI course to try to pull out the information we need in a way that is easy and intelligible to everyone. That way, we will be able to make better use of the system we have. (…) Consultants have come in to figure out what key information we want to pull out. They will set up a baseline for us where we can pull out dashboards that we might need at any given time but very self-service. Have reports and masks as they are needed." CSCO

This element made it possible to improve proficiency in using the system and facilitated the durability of the introduced change. Theories related to organizational change suggest that as the ability to master a new tool, system, or technology increases, individuals become more connected and committed to it (Gersick, 1991).

In relation to the initiative's success, some factors posited in the concluding phase of the framework by Stouten et al. (2018) and related to making change lasting over time seem to have played an important role.

Particularly prominent among these is integrating the new system and related approaches with organizational culture and main business processes.

In fact, the system is now regularly used by management to make decisions, and there has been a visible change in mentality. The system has become, in effect, part of company routines, and as meetings are called, the results achieved and how performance can be managed or improved are always discussed.

"We transformed this company. From a business run in an improvised way by technicians who had no idea on how to run a business to a more entrepreneurial way where performance targets and management control became everyone's bread and butter (…)This evolution has brought awareness to all people about what levers are at our disposal, always balancing on the other side a whole series of factors that are essential for business continuity." CFO

Employees have become so accustomed to using the system that its eventual and possible abandonment would generate difficulties at this point, as the quote below from the CTO points out:

"Now, many people panic if the indicators are gone. Everyone wants to see them. (...). Some indicators such as those related to incoming orders, are almost always of interest to everyone. It is an element that stirs great interest. The sales manager is typically always there to update the data on the screen day by day." CTO

Thus, it can be understood that these factors play an important role in relation to the sustainability of change. As the use of the new systems has become part of the company's routine and its processes, it is more unlikely that there will be a return to the initial situation.

Nevertheless, in this case, we find it impossible to classify the effect of these "sustaining" factors in relation to what is proposed in Kasurinen's (2002) framework. Indeed, the framework in question seems to take into account only the factors that affect the success of the initiative before and during the implementation phase, while it seems to leave out the element of the durability of change, which is central to the literature on management accounting change of institutionalist nature (e.g., Burns & Scapens, 2000) and in organizational change literature (Buchanan et al., 2005).

6. Discussion

In this discussion section, we will first present the theoretical contributions and, specifically, the expansion that has been made of both Bourne et al.'s (2000) and Kasurinen's (2002) framework. Next, we will address the empirical contributions based on the existing literature related to the implementation of PMS. Finally, some reflections that might be useful from a practical standpoint will also be presented.

To begin with, to facilitate the understanding of what is argued here, we report again in the table below the enabling factors that were identified in the case study with the support of the framework by Stouten et al. (2018). These factors are presented here in a slightly more generic form than in the case study so that they can also be more easily identified in any other similar situations and case studies. By way of example, the factor of face-to-face communication has been changed to effective communication[23], as this is the actual element that positively impacted the change process.

Enabling factor	Stouten et al. (2018) step	Bourne et al. (2000) phase	Kasurinen (2002) framework
Awareness of the need for change	Organizational diagnosis (1st step)	Pre-design	Catalyst/Motivator
Belief that the reasons for change is legitimate	Organizational diagnosis (1st step)	Pre-design/*design*/implementation	Motivator
Leadership Commitment	Change readiness assessment (2nd step)/ Leadership Development (4th step)/Change	Design/*implementation*/use	Catalyst/leadership

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[23] In fact, face-to-face communication has often been described as the most effective form of communication by psychology studies, as it makes it the most difficult for misunderstandings to be generated by allowing direct interaction (e.g., the ability to see the expressions and reactions of the recipient of the message) and feedback (Hayes, 2022).

	instituzionalization (10th Step)		
The company partially had the know-how related to change	Change readiness assessment (2nd step)	Design/implementation/use	Facilitator
The leadership's and promoters of change active support of the system during the implementation and use	Leadership Development (4th step)/ Change Institutionalization (10th Step)	Implementation/use	Momentum
The implementation process enabled/allowed learning processes	Change interventions implementation (3rd step)/ Implementation support (7th step) / Experimentation (8th step) / Progress assessment (9th step)	Implementation	Facilitator
Keeping track of the change progress	Progress assessment (9th Step)	Implementation	Facilitator
Effective communication of the change content and implications	Change communication (5th step)	Implementation	Facilitator

The individuals responsible for the project had complementary skills	Leadership/Development (4th step)	Design/Implementation/use	Facilitator
Achievement of small wins/presence of visible benefits gradually obtained with the gradual adoption of the tool	Experimentation (8th step) / Progress assessment (9th step)	*Implementation* / *Use*	Momentum/facilitator
Organizational identification	Implementation support (8th step)	Design/*implementation*/use	Motivator

Table 8: General summary of the enabling factors that can be identified in the different phases that make up the extended framework of Bourne et al. (2000) and the Stouten et al. (2018) framework

In the same way, as for the enabling factors, we show in table 10 the inhibiting factors in a more general form, extrapolating them from the specific factors of the case analyzed.

Hindering factors	Stouten et al. (2018) step	Bourne et al. (2000) phase	Kasurinen (2002) framework
Individuals feel the change is not appropriate for the organization	Change readiness assessment (2nd step)	*Design*/implementation/use	Frustrator
The individuals don't have the necessary knowledge to implement the change	Change readiness assessment (2nd step)/	*Design/implementation/use*	Delayer

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Issues in routinization/ adoption/diffusion/spread of the system by a part/all of the individuals	Progress Assessment (9th step) / Change institutionalization (10th step)	*Implementation/use*	Delayer

Table 9 General summary of the hindering factors that can be identified in the different phases that make up the extended framework of Bourne et al. (2000) and the Stouten et al. (2018) framework

In light of what has been presented in the results section, the joint use of the three frameworks seems justified. Stouten et al.'s (2018) framework made it possible to identify those human, organizational and individual factors that affected the change process while maintaining a processual and not static perspective. Bourne et al.'s (2000) framework allowed us to more clearly break down the phases that characterize the planned implementation of a PMS without losing track of the presence of more technical elements closely related to this specific type of change. Kasurinen's (2002) framework allowed us to more clearly establish the effects that the factors identified in Stouten et al.'s (2018) framework had on the management accounting change process.

Concerning Bourne et al. (2000) framework, our research supports the importance of the "pre-design" phase, which is absent in their work, but that, in our case, was of paramount importance in preparing the ground for the implementation of PMS. Without this phase, Bourne et al.'s (2000) framework does not seem to be able to fully represent the human dynamics associated with implementation and the factors that enable or hinder the initiation of this process.

Another significant point of discussion that emerges is that Kasurinen's (2002) framework, even in its extensive classification of enabling and hindering factors for management accounting change processes, does not take into account those factors that produce the effect of reinforcing and making change spread within the company. Although it is a fundamentally static framework, it contains elements that consider the fact that management accounting change is a process. An example of this is given to us by momentum, which represents the impetus gained through the “movement” and change towards the new future condition, and which can only occur during implementation. The question then arises as to whether this model might not be more complete by also taking into account the factors that contribute to making change something lasting. Among other things, the literature on management accounting change, which has its roots in institutionalist

theories (E.g., Burns & Scapens, 2000), devotes considerable importance toward analyzing those factors that lead to the institutionalization and routinization of new management accounting practices. Stouten et al.'s (2018) model, like other models of change (e.g., Kotter, 1996), which instead has its roots in the studies of psychology and business organization, devotes an entire step to making change sustainable over time. This does not come as a surprise given that from the earliest days of this discipline, the problem of making change durable after it has been achieved is central. Lewin himself (1947), in his model of change, identified a refreezing phase aimed at making the achieved change permanent. Much quoted with respect to Lewin's studies is the following passage:

"a change toward a higher level of group performance is frequently short lived; after a "shot in the arm," group life soon returns to its previous level. This indicates that it does not suffice to define the objective of a planned change in group performance as the reaching of a different level. Permanency of the new level, or permanency for a desired period, should be included in the objective." (Lewin, 1947, pp. 34-35).

In the case taken under analysis, some factors seem to have played an important role in making the change last. The introduction of the new system was accompanied by a learning process that enabled the subjects to become more familiar with it and to be able to use it more regularly. Learning is generally a factor that creates a "loyalty" of the subjects toward the tool, who, having expended effort in order to be able to learn how to use it, are not inclined to adopt a different one or to go back, thwarting their efforts (Hayes, 2022). Moreover, the learning process itself generally allows for a greater understanding of the tool and, consequently, of the potential benefits associated with its use. Along with this learning process, there has been a real change of mindset on the part of the individuals who make up the company. Gradually the system became increasingly used, to the point of generating "panic" among employees whether there was the inability to access indicator dashboards. In addition, management has repeatedly spoken of how the company has undergone a significant transformation following the implementation of the PMS. The system has thus become part of the company's daily routine and an integral part of the organizational culture. We recall that not only the change management literature (Stouten et al., 2018; Kotter, 2012) but also that related to management accounting change (Jazayeri & Scapens, 2008; Busco et al., 2002) and PMS implementation (Franco-Santos et al., 2012; Bititci et al., 2006) speaks of the importance of cultural change in order to make change institutionalized or otherwise effective and lasting.

Also important for the durability of change was the achievement of benefits that were visible, unambiguous, and directly related to the change process. While in the implementation phase, these benefits helped to build *momentum* and facilitate the implementation itself by overcoming the resistance of individuals who remained skeptical; once the implementation was realized, these benefits fostered loyalty toward the system. This loyalty was clear from the interviews conducted with executives, who explained how essential the system has been to the company's success over the years and the central importance the system takes on in corporate life and in the work of individuals.

We then call these above-mentioned factors that favored the durability of change in our case and, therefore, allowed its institutionalization as *reinforcers*. These factors take inspiration from what Stouten et al. (2018) said but also from several other change management models that focus much attention on reinforcing the change and making it sustainable over time (Hayes, 2022; Kotter, 2012; Hiatt, 2005; Lewin, 1947). Figure V shows an expanded version of Kasurinen (2002) framework, which also considers and represents the reinforcers' effect.

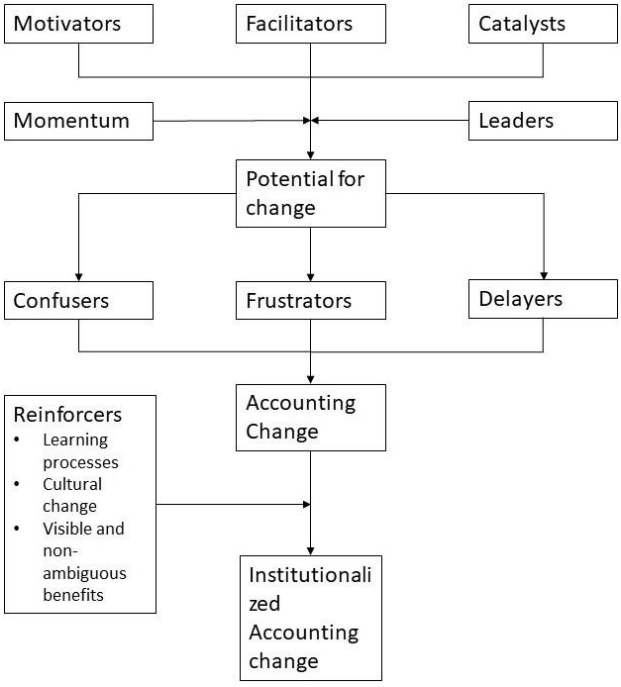

Figure V: Revised accounting change model

Besides, one of the elements that we believe to be of most interest in this thesis work is also the fact that unlike most of the literature on management accounting change, which is based on the sociological theories of institutionalism and neo-institutionalism (Burns & Vaivio, 2001; Burns & Scapens, 2000), is that this work is grounded on theories of organizational change and psychology, bringing the focus back to the actions of the individual. In the analysis of planned organizational change (Stouten et al., 2018; Lippitt et al., 1958), such as the implementation of a performance measurement system turns out to be (Bourne et al., 2000), we believe that the individual dimension in which single subjects act as agents of change is nonetheless important. In our case of analysis, the actions of individuals who acted as *leaders* and *catalysts* of change (Kasurinen, 2002) indeed seem to have played an essential role in producing the change. It is, in fact, the arrival of individuals, i.e., the consultant and the CFO, that allowed the process to start and, subsequently, proceed successfully. The very development of awareness of the need to

change, central to the change management literature (Stouten et al., 2018) and essential to the initiation of our case of planned change, remains an element closely tied to the individual's perceptions. The problems were certainly affecting the whole company, but awareness developed at the micro-level of the individual and then spread to the entire organization (Stouten et al., 2018). At the same time, adoption of the system remains uneven within the company, and, as noted, this is due to the different individual characteristics of each member of the organization. Indeed, some individuals have been more willing and more prepared to adopt the new tool, while others have not actually begun to use it regularly.

The present study suggests the importance of reconsidering the effect of these factors, which belong to the micro-level, to better understand the dynamics that lead to the success and failure of these processes, taking into account also the developments that the discipline of change management and organizational change studies have had in the last 20 years (e.g., Stouten et al., 2018; Buchanan et al., 2005). Together, therefore, with the adoption of this perspective, it is also suggested that at least a more than significant portion of management accounting change and PMS implementation processes can be likened to planned change (e.g., processes described in Bourne et al., 2003a:b; Kasurinen, 2002; Bourne et al., 2000; Cobb et al., 1995; Argyris & Kaplan, 1994), which is central to studies related to change management and organizational development & change (Burke, 2017). In studies of planned change, individuals are viewed as active participants who contribute directly to shaping the change process and influencing its relative dynamics of success or failure (Burke & Litwin, 1992).

Among the new developments in the field of organizational change that could be considered more in the field of PMS implementation and management accounting change, there is the concept of *change readiness*, which has gained increased relevance over the years. In fact, this concept and the effect it might have on PMS implementation and management accounting change processes remains largely ignored, although *change readiness* has had numerous expansions (Rafferty & Jimmieson, 2013; Weiner, 2009) in the field of organizational change studies since its first conception (Armenakis et al., 1993). The present study has only succeeded in recognizing the importance of some components of *change readiness*, while others, as noted in the results section, remain fundamentally unexplored. Future studies could therefore delve more deeply into the topic of *change readiness* and its importance for management accounting change processes. However,

there are also other elements that could be explored. These include the effect of organizational history (Bordia, Restubog, Jimmieson, & Irmer,

2011; Rafferty & Restubog, 2017) on individuals' perceptions of succeeding or failing to make certain changes successfully. Or a more detailed analysis of the effect individuals' perceptions of organizational justice and fairness (Koivisto, Lipponen, & Platow, 2013) might have on implementation processes.

With reference to the critical success factors present in the Stouten et al. (2018) framework but less explored in the PMS literature[24], it has not always been possible to understand or confirm the effects of these factors on implementation success.

As already mentioned in this paragraph, the development of a formal *diagnosis* of the state of the company aimed at identifying problems was not a factor that proved essential to the initiation of the process. However, a "rough" diagnosis or an idea of what the problems were in the company was present and was an essential contributor to the development of awareness of the need for change and, thus, to the initiation of the project itself.

Regarding the multidimensional factor of *change readiness*, it was possible to find confirmation on only some of its constitutive elements. First, the effect of organizational history on the initiative's success could not be determined since there had been no changes or attempts to change of a similar nature previously. Similarly, stress's effect on individuals' capability to embrace change could not be verified with absolute certainty. Nevertheless, it appears from the interviews that there was not and still is not a high-stress situation at work in the company, having the organization always navigated in relatively calm waters and fostering a relaxed and sharing atmosphere. Another factor that has been found to negatively affect *change readiness*, acting as a *delayer*, is related to the absence of adequate knowledge within the organization to introduce the specific change. Learning took place in the field, and the system was developed by trial and error, requiring more time than in other cases. The perception on the part of individuals that the change

[24] We recall that at the end of Chapter 3, the least explored factors identified through the literature review were respectively (1) Production of a diagnosis on the basis of which to identify an issue to be solved or on an opportunity to be caught that requires the implementation of the tool (2) level of change readiness (3) achievement of small or quick wins during the implementation process (4) perceived fairness of the change process (5) enabling of testing and experimentation activities including with the support of transition facilities and/or the use of a prototype of the tool (6) level of employee identification with the organization

would negatively affect their individual work lives and, consequently, the company's performance also plagued corporate *change readiness*. Not only was the change perceived as inappropriate by some and not easily achievable in the specific context, but there was also the fear that if it actually came to fruition, this would end up limiting the creativity of the research and development department. Also significant was the support that the leadership was committed to making its employees feel, always trying to share knowledge and not leaving them alone in their process of learning and adopting the system. This perceived support facilitated the implementation process and favored *change readiness*.

Aspect generally not particularly considered in the PMS literature also concerns obtaining *small wins* during the implementation process and use of the system. These small "victories," while not commonly taken into account in the literature related to PMS implementation or management accounting change, played an essential role both during and after implementation, thus proving to be critical to the success of these initiatives.

Another element that has proved significant in our case but is still rather ignored is that of *fairness*. Indeed, the literature related to management control and PMS has contemplated the issue of *fairness* and how it affects individuals' performances and behavior but mainly in relation to how the system is designed, how the system is used, and how targets and rewards are assigned. Silent, on the other hand, remains the literature with respect to the effect that the perception of *fairness* can have on the success of these initiatives. In the case examined, the leadership put significant effort into making people feel they were always treated with respect. First, there was an attempt to make everyone feel involved and to ensure that all understood the implications and progress achieved during the implementation process. These meetings generated involvement by allowing people to express their concerns or propose solutions and suggestions. Second, there was also a focus also on the aspect of *distributive justice*. In fact, management decided to allocate rewards on the basis of company-wide goals achieved, without linking the system of rewards to that of individual targets, while still being able to get a clear idea of the performance achieved by each manager. In this way, it was not possible for some people to feel that they were rewarded less or differently than others.

According to the interviewees, relations have always remained quite positive and cordial, indeed affecting the perception of *interpersonal justice*. Finally, even at the level of information justice, as soon as the project properly got underway, there was a focus on keeping everyone

informed at all times, both on the progress of the work and the results achieved. According to management, this approach they have taken has fostered a positive climate and acceptance of the change. With reference to the element of organizational identification, this factor also seems to have played an important role. Resistance was related overall to the concern that the change might end up harming the company. Yet, when the change was shown to bring benefits to the company, despite the additional work required from the individual, any resistance seemed to diminish.

With reference to allowing individuals to *experiment* with the new tool and make local adaptations, in our case study, it could be found that the company gave individual managers the opportunity to develop their own customized dashboards while also providing the necessary training to enable them to extrapolate the data they need more easily.

Although it was not possible from the case study to understand the contribution made by this factor, the interviews revealed some satisfaction from management related to the ability to use and customize the tool based on their needs. Thus, it can be argued that this satisfaction, which appears to be linked to perceived benefits related to their ability to perform and manage performance better through the tool, helped to favor use and generate loyalty toward the new system.

As we have already highlighted, unlike what is suggested in the framework of Stouten et al. (2018) and other change management models (Luecke, 2003; Beer et al., 1990; Lippitt et al., 1958), in this first phase or step, no accurate formal business diagnosis has been conducted to identify the problems facing the company or opportunities to be seized. Nevertheless, there was widespread awareness in the company among all members of management and a good portion of employees of significant problems that required solutions. As the company was small, it appears that it was possible for management to keep track of the main business processes, and the information flow moved in a rather streamlined manner. In other words, the management was able to observe with their own eyes and in a direct form all the daily issues in the company. Without excluding the usefulness of what is suggested in the framework of Stouten et al. (2018), we argue that the formalized development of a business diagnosis might not always be necessary to initiate a change process since, especially in smaller companies, it is easier to have at least an awareness of the approximate performance of the company as a whole and of the main problems that plague individual, organizational units (Castellano, 2012). Fundamental, however, remains the element of developing an awareness of the need for change, which proved to be a driving force for the initiation and the entire course of the implementation process. Without a valid reason to introduce

these kinds of tools, a planned PMS implementation process such as the one proposed in Bourne et al.'s (2000) framework appears difficult to achieve or even commence. In particular, by considering Kasurinen's (2002) framework, we suggest that the awareness of problems at the level of production and product delivery acted as a *motivator*, generally fostering the need to introduce change, while management's perception of inaccuracies at the level of financial performance measurement acted as a *catalyst*, fostering the development of better performance measurement systems.

Finally, our case study seems to confirm what has been said by Nudurupati et al. (2011), who suggested, by considering Bourne et al.'s (2000) framework, that change management approaches appear moderately useful in the design phase and very useful in the implementation and use phases. While arguing for the practical usefulness of change management approaches in the three stages identified by Bourne's (2000) framework, this paper did not bring any empirical evidence to support its claims. In addition, the usefulness in general of change management approaches to favor PMS implementation had then been cited by several previous studies related to the implementation of PMS (Bourne et al., 2003a; b; Bourne et al., 2002; Bourne et al., 2000), but still, none of them provided great evidence in favor of the prescriptions in these models.

From the case study analysis, it emerges that many of the factors and prescriptions provided by Stouten et al. (2018) seem to confirm their relevance and usefulness in fostering the success of PMS implementation processes. For example, we have seen the importance, already acknowledged in other cases, of communicating effectively with respect to change or how central the role of leadership is in supporting these kinds of initiatives. The only step on which we could not find any support concerns the one related to *social network exploitation*,[25] as it is entirely based on the figure of the change agent, which was absent in this case. Other specific factors that could not be analyzed then relate to the effect of organizational history and successes or failures on current change processes or the effect that stress has on the ability to identify the need for change and on acceptance of the change. Nevertheless, our study seems to confirm the potential applicability on the field of this model in a management accounting change case, which was not a given considering the lack of empirical evidence of the application of change management theories for understanding these processes.

[25] Sixth step of the framework.

7. Conclusions

In this thesis work, we analyzed the phenomenon of management accounting change and, specifically, the implementation of a performance measurement system by adopting the typical perspective of studies related to organizational development & change. This already sets itself up as an element of originality since most studies related to management accounting change are based on theories of a sociological nature (e.g., neo-institutionalism, institutionalism, etc...) rather than on theories that look at the individual as an actor of change and the psychological implications related to transition and change. In other words, while institutionalist and sociological theories have ended up analyzing change by considering the interaction between the macro and the meso level (i.e., society or institutions and the organization), this paper focuses instead on the interactions between the micro and the meso (i.e., the individual or a group of individuals in an organization and the organization itself).

So far, the analysis of PMS implementation through the perspective of change management has been suggested only by studies inherent to operations management (Nudurupati et al., 2010; Bourne et al., 2003). However, these same studies, while suggesting the apparent usefulness of change theories to support implementation processes and better understand their dynamics of success and failure, did not show any empirical application of these same theories. In light of the literature review and case study analysis, this thesis seems to confirm the usefulness of such theories for analyzing management accounting change processes and better explain what factors influence and how they act on the success of these initiatives.

With reference to the topics analyzed, after the first chapter devolved to the introduction of this research work, there is a second chapter dedicated to performance measurement systems. A brief history of these tools has been provided, including why they have established themselves and how they have evolved over time to meet companies' changing needs. Subsequently, we have provided an excursus on the main models and proposals in the field of PMS. Among the models taken into consideration and commented upon are the tableau de bord (Pezet, 2009), the SMART model (Lynch & Cross, 1991), the intangible asset monitor (Sveiby, 1997), the performance pyramid (Neely et al., 2002) and the balanced scorecard (Kaplan & Norton, 1996). Each model has been analyzed, explaining its main characteristics, the knowledge needs each system aims to satisfy, and its main strengths and weaknesses recognized in the literature. This paragraph also

showed how the proposals gradually made concerning PMS aimed to overcome the limits of more traditional systems or, sometimes, of the previous PMS proposals.

After that, we dedicated a paragraph, still within the second chapter, to establish this study's boundaries. There are many proposals in the field of PMS, and sometimes, both in the company and in the research field, the concept of performance measurement is used with different meanings. Therefore, to establish the characteristics that a PMS should have in order to be defined as such in our work, we decided to use the defining features of the contemporary performance measurement systems established by Franco-Santos et al. (2012). In their work, the latter have identified four different types of PMS on the basis of the components and the key uses of these systems.

Here, we have decided to consider all four of these types as PMS, thus specifying that to be considered PMS, these systems should be made up of both financial and non-financial measures and should be linked to the company's strategy. Regarding the purpose of their use, we assumed that they could be used only to inform managerial decisions and evaluate business performance or also to evaluate managerial performance and/or assign incentives.

We have therefore provided an overview of the definitions that have been given in the literature of PMS since, in order to have the most comprehensive view possible on this phenomenon, we decided to consider not only the studies published in the field of management accounting but also of operations management and strategy. As already mentioned extensively in this work, the theme of PMS has, in fact, been addressed in various branches of studies. For example, although accounting scholars developed the balanced scorecard itself, it was applied and studied in other fields.

In the concluding paragraph of the second chapter, we instead focused our attention on the process of implementation of performance measurement systems and the problems identified and studied in the literature. This literature review is based on sources belonging to different research streams (i.e., management accounting, strategy, operations management) and is structured in such a way as to consider the most significant elements for each of the phases that make up the PMS implementation process described by Bourne et al. (2000). This section has therefore been broken down specifically following the three phases identified by Bourne et al. (2000) in order to report respectively the studies that focused on the design phase, the studies that focused on the implementation phase and the studies that focused on the use of the system. We have seen that the analyses that covered the design phase have mainly focused on technical aspects (e.g., approaches

followed in developing the system, problems encountered in developing and identifying the best indicators) or on the effects that certain design choices may have (in terms of motivation, ability to monitor the strategy, etc.). Instead, implementation studies have usually sought to identify the dynamics that lead to success and failure in the introduction of these tools, also using a variety of theoretical frameworks. There is also no shortage of more prescriptive studies in operations management aimed at providing an implementation strategy to prevent possible difficulties and ease the transition. Finally, the studies related to utilization ultimately sought to understand how these tools affected business performance, taking into account aspects related to, for example, the patterns of use, the effects on motivation, and the effects on perceptions of organizational justice.

In the third chapter, we presented and analyzed studies related to change management and the main proposals concerning the management of planned change.

We began by providing a historical account of this strand of study. We started from the earliest theories and Lewin's (1947) model, briefly showing the evolutions that subsequent prescriptive change management models have brought. We observed that new theories developed to meet the new issues as they emerged and needed to be addressed by companies. After that, we saw the main proposals for change management models, dividing them into three categories based on their scope and type of use. In particular, we identified the main proposals in terms of organizational change models that focus on change management at the corporate level. Then, we have seen what are the main proposals as far as individual transition models are concerned, thus focusing on dealing with issues encountered at the level of the individual workers during major changes affecting the company or their job.

Finally, we looked at diagnostic models that instead aim to encourage the identification of issues or opportunities affecting the company and how change might impact business performance, in perspective typical of the organizational development and change school.

After analyzing all the popular change management models, we moved on to a specific model devised by Stouten et al. (2018). We highlighted here that this model was chosen because, unlike all the more mainstream proposals, this model provides prescriptions based only on empirical evidence from research and not from the direct experience of some guru, consultant, or change expert. Moreover, it is a much more recent proposal, taking into account the changes that have affected society and, thus, companies and all the theoretical developments that the field of change management has accomplished.

In this chapter, we then presented the phases that make up the model, also providing comments on the main similarities and differences with the previous proposals.

After that, we identified the enabling and hindering factors identifiable in the model. This step was considered crucial to try to determine codes that could help in the interpretation of the case study. Each of these factors was then set out in a table so as to maintain the processual sequentiality of Stouten et al.'s (2018) framework, always keeping in mind what the timing is, therefore, with which these factors may arise or, in any case, may affect-positively or negatively-the change process. We also provided a short name for each step in Stouten et al.'s (2018) framework to facilitate their identification when discussing the results.

Each step was then examined, considering the enabling and hindering factors, in light of what has been said in the literature on PMS. We attempted to understand the points of contact and similarities between the literature related to PMS implementation and management accounting change with this framework to identify issues already explored and addressed exclusively in the field of change management.

The chapter then concluded by recapping what seemed to be the least explored factors, namely:

- level of change readiness
- achievement of small or quick wins during the implementation process
- perceived fairness of the change process
- enablement of testing and experimentation activities also with the support of transitional structures and/or the use of a prototype of the tool
- level of employees' identification with the organization

The last three chapters of the thesis were completely devoted to the case study.

The fourth chapter presented the methodology, specifying the method adopted for data collection and its analysis. We underline that the case study was developed primarily on the basis of ex post interview collection after the implementation was basically already completed. As for the data analysis, we resorted to their coding, reported in excel, using Stouten et al.'s (2018) framework and the identified enabling and hindering factors. However, the model proved incomplete in representing a management accounting change phenomenon, as is the implementation of a PMS. Therefore, for data coding and analysis, we made use of Bourne et al.'s (2000) model, which allowed us to efficiently decompose the implementation process, and

Kasurinen's (2002) model, which allowed us to better understand the effect of the different factors identified by Stouten et al. (2018) had on the success and failure dynamics of the implementation process.

Chapter 5, on the other hand, was devoted to presenting the results recorded in the case study. In the first paragraph, we gave an overview of the company without going into specific detail about the actual implementation process. Its history, the sector, and the market in which they operate, as well as the peculiarities that characterize it (e.g., being a company composed of creatives and basing its success on creativity), were presented. After that, we reconstructed the implementation process without presenting the results but only describing the dynamics that led to the introduction of the system.

Before explaining the change process in detail and the results collected, however, we provided a paragraph in which we explained the type of management control systems adopted in the company.

Concerning the analysis of the change process and thus of the results collected, the framework of Bourne et al. (2000) was applied, as mentioned earlier, so as to decompose the stages that characterized the implementation of the PMS. Yet, the joint use of this framework with that of Stouten et al. (2018) made us perceive the need to expand Bourne et al.'s (2000) framework of the implementation process, originally composed of the design, implementation and use phases, by adding a pre-design phase, generally recognized as preparatory and essential by the change management literature. In this way, the process representation was more complete, facilitating the same analysis of the results. In each of the phases identified in our revised version of Bourne et al.'s (2000) framework, we then reconstructed the factors that influenced the change process and identifiable in Stouten et al.'s (2018) framework but also classified them based on the effects they produced, using Kasurinen's (2002) framework.

In this way, we were clear about the timing of certain factors or events, or at least when they ended up affecting the implementation process the most, and the effects produced by each.

Instead, the last chapter before these conclusions was devoted to presenting respectively the theoretical, empirical, and practical contributions provided in this work.

As already mentioned, in the results, to begin with, we proposed the expansion of Bourne et al.'s (2000) framework so that, in addition to the consideration of the more strictly technical factors

(e.g., the design and gradual introduction of dashboards) we could consider the elements related to the human factor, which emerge prominently even before the system design phase.

Another theoretical contribution made then concerns Kasurinen's (2002) expansion of the framework.

In fact, although it takes at least some account of the sequentiality with which certain factors may occur (e.g., momentum may appear only during system implementation) and although much of the management accounting change literature focuses on exploring the process that makes change lasting and institutionalized, this model does not consider the factors that contribute to the durability of change.

To the enabling and hindering factors, we then added what we called reinforcers, which contribute precisely, to the permanence of the change, at the moment when at least part of the implementation process has ended.

We believe that in this way, the model can better represent the factors affecting the success of the change process, bearing in mind that the literature on the planned change also places considerable emphasis on the sustainability of change and generally describes as successful those transformations that are found to be durable.

From the point of view of empirical contribution, this work has brought attention to elements considered relevant by the change management literature but little considered by that of the PMS. An example is change readiness, a concept that has received numerous revisions and developments over the years, being addressed in multiple publications. Or, again, the issue of organizational justice, addressed above all concerning how the system is designed and used, but not in the implementation phase. As just mentioned, the work then brought the focus back to the actions of individuals, in contrast to institutionalist approaches, being able to play the active role of agents of change.

Still, it was not possible from here to verify the importance of all the little-explored and identified factors in the framework analysis. For example, a formalized diagnosis was not conducted correctly in the case under analysis to search for problems that needed to be solved or opportunities that needed to be seized, an element considered essential in all planned changes. Still, we have seen how a minimum of awareness relating to the existence of problems had developed and how this awareness was central to the launch of the PMS development and implementation project.

From a practical point of view, although the model of Stouten et al. (2018), there are some elements that emerge that suggest its potential usefulness in supporting management accounting change initiatives. In fact, the model does not take into account the technical elements linked to the development and use of the system. Nevertheless, it does take into account some aspects linked to the human factor which have affected the change process. When implementing it, taking into account factors related to communication, the perception of organizational justice, and the level of change readiness could be useful for more effective management of the process and preventing possible problems.

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