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**PERFORMANCE MEASUREMENT SYSTEM FOR NONPROFIT
ORGANIZATION AND PUBLIC ADMINISTRATION: A STUDY OF THE
DESIGN FACTORS AND PRACTICAL IMPLICATIONS**

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ORGANIZATION AND PUBLIC ADMINISTRATION: A STUDY OF THE
DESIGN FACTORS AND PRACTICAL IMPLICATIONS**

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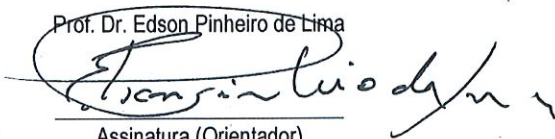
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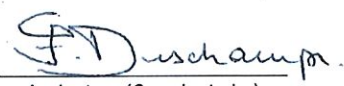
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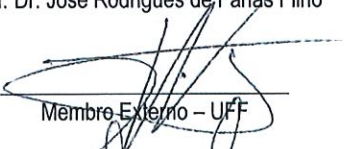
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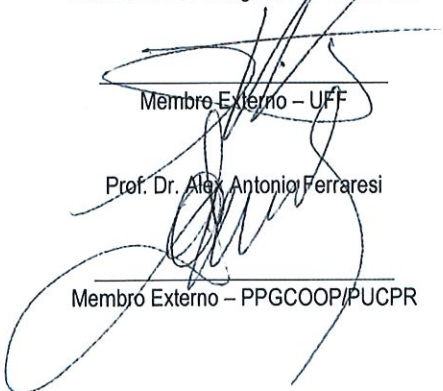
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To my husband

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ABSTRACT

The purpose of this thesis is to identify the factors that influence the design of performance measurement system (PMS) in nonprofit organizations (NPOs) and public administration, and to discuss the role that design factors play in practice. Some of the proposed theoretical models of performance measurement and management are adaptations from for-profit models, but the literature suggests that, in some cases, these models are not able to deal with the complexity and dynamics of these organizations. The literature points that in order to design a PMS for these organizations, it is necessary to understand what are the factors that influence this design. This thesis is structured in four phases which encompass a qualitative method in order to identify and discuss the design factors. The first phase is the development of the systematic literature review (SLR). The bibliometric and keyword analysis examines the research field of PMS in NPOs and public administration, and evaluates the research area. The second phase is related to content analysis of the SLR. A set of 29 papers focusing on the design of PMS was thoroughly studied, and the results provide a multi-disciplinary and holistic set of 10 factors related to purpose, stakeholders, and management. An application of a factor co-occurrence social network for determining the relationship between design factors indicates that the factors are particular to the organizational dynamics and should be considered by managers involved with the design (or redesign) process of a PMS. As a third phase of the research design, case studies with three nonprofit and three public organizations were conducted in the United States, Canada, and Brazil, providing valuable insights about the design factors. The last phase presents a review of a PMS implementation and operationalization process, to provide a suitable design approach for NPOs and public administration. To this end, two steps of review are performed. First, through the enterprise engineering guidelines that guarantee that a PMS does not become obsolete so that capabilities are developed for keeping it updated in a complex and dynamic environment. A second review was made through the design factors identified in this research that provide a customized process for NPO and public administration. In summary, this study achieves its purpose of identifying the factors that influence the design of PMS in NPO and public administration which are social aspects, accountability, legitimacy, involvement and influence of stakeholders, volunteering, financial sustainability, short and long-term planning, fairness, effectiveness and efficiency, and strategic management control. Also, the thesis discusses the role that the design factors play in practice. The identified factors and the study thereof, regarding content analysis, as well as case studies, allowed an exercise review in a PMS implementation and operationalization process that can assist researchers and managers in the design or redesign process of a PMS.

Keywords: performance measurement and management, performance measurement system, design, nonprofit organization, public administration

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RESUMO

O propósito dessa tese é identificar os fatores que influenciam o design de SMD em organizações sem fins lucrativos e públicas e discutir o papel desses fatores em aplicações práticas. Alguns dos modelos teóricos propostos são adaptações dos modelos de organizações com fins lucrativos, porém a literatura sugere que esses modelos não são sempre hábeis para lidar com a complexidade e a dinâmica dessas organizações. A literatura aponta que para o desenvolvimento de um SMD para essas organizações é necessário entender quais são os fatores que influenciam esse processo. Essa tese está estruturada em quatro fases que englobam um método qualitativo para identificar e discutir os fatores de projeto. A primeira é o desenvolvimento de uma revisão sistemática de literatura (RSL). Uma análise bibliométrica e de palavras-chave examinam o campo de pesquisa de SMD para organizações sem fins lucrativos e públicas e oferecem uma visão geral da evolução da área de pesquisa. A segunda fase está relacionada com a análise de conteúdo da RSL. Um conjunto de 29 artigos sobre o design de SMD foram intensamente estudados e os resultados apontam um conjunto multidisciplinar e holístico de 10 fatores relacionados a propósito, partes interessadas e gestão. Uma aplicação de análise de rede sobre a ocorrência dos fatores para determinar o relacionamento entre eles indica que os fatores são singulares para a dinâmica das organizações e devem ser considerados no desenvolvimento ou revisão de um SMD. Como terceira fase da pesquisa, estudos de casos foram conduzidos em três organizações sem fins lucrativos e três administrações públicas nos Estados Unidos, Canadá e Brasil, gerando importantes implicações sobre os fatores de design. A última fase apresenta uma revisão de um processo de desenvolvimento e implementação de um SMD com o objetivo de oferecer uma abordagem adequada para as organizações sem fins lucrativos e públicas. Duas etapas de revisão foram conduzidas: primeiro através das diretrizes da engenharia das organizações que garantem que um SMD não se torne obsoleto e por isso capacitações são desenvolvidas para garantir a atualização em ambientes complexos e dinâmicos; e uma segunda revisão feita através dos fatores de design para oferecer um processo customizado para essas organizações. Concluindo, esse estudo atinge seu propósito de identificar fatores que afetam o desenvolvimento de SMD organizações sem fins lucrativos e públicas os quais são aspectos sociais, responsabilidade, legitimidade, envolvimento e influência das partes interessadas, voluntariado, sustentabilidade financeira, planejamento de curto e longo prazo, justiça, eficácia e eficiência, e controle de gestão estratégica. Além disso, a tese discute o papel que os fatores de design desempenham na prática. Os fatores identificados e o estudo dos mesmos, em relação à análise de conteúdo, bem como estudos de caso, permitiram uma revisão de exercícios em um processo de implementação e operacionalização da PMS que pode auxiliar pesquisadores e gestores no processo de projeto ou revisão de SMD.

Palavras-chave: medição e gestão do desempenho, sistema de medição de desempenho, design, organização sem fins lucrativos, administração pública

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ABBREVIATIONS

NPO	Nonprofit organization
PMM	Performance measurement and management
PMS	Performance measurement system
PM	Performance measurement
SLR	Systematic literature review

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1 INTRODUCTION

Nonprofit organization (NPO) or not-for-profit organization are terms related to types of organizations with a financial management restriction that implies not sharing profit among stakeholders, even if they are owners, investors or financiers. However, such organizations may have positive financial results that are reinvested in its social goals. Hence, the NPO sector is extremely diversified, including universities, religious institutions, health care organizations, museums, charitable organizations, voluntary agencies, aid agencies, foundations, trade unions, civil right groups, cooperatives, social enterprises, humanitarian disaster relief agencies, and organizations of the third sector (Valentinov 2011; Moxham 2009; Berenguer 2015).

These organizations share the same social purpose for their audience as the public organizations and, sometimes, NPOs work with local demands that local government is not capable of providing (Sinuany-Stern and Sherman, 2014; Mehrotra and Verma, 2015). In this way, the public administration funds these NPOs frequently and regulates their activities. In this perspective, both NPO and public administration share social responsibilities, but while NPOs usually work through projects, public administration works through a government or statutory plan. Sinuany-Stern & Sherman (2014, p. 5) argues that public organizations and NPOs are comparable in terms of optimizing performance measures, rather than maximizing profit, such as: “minimizing costs while maximizing service provided, managing risk and performance time, selecting preferred operating methods, and/or allocating resources effectively.” Berman (2014) cites some reasons for performance improvement in both kind of organizations as efficiency, effectiveness, avoidance of waste and fraud, source of motivation and professional satisfaction, external relations, management, volunteerism, marketing, and fund-raising. Popovich (1998) indicates that high performance in those organizations refers to well-established mission and outcomes, focus on results, motivated human resources, flexibility and also there is a concern regarding performance and channels of communication with stakeholders.

Micheli & Kennerley (2005) observe that one of the most complex issues regarding NPOs and public administration is the management of stakeholders. Stakeholders’ different expectations affect how they judge and attribute trust and credibility. In the users/clients’ perspective, the organizational purpose is to meet collective needs of specific groups related to its social

purpose. Meanwhile, financial restrictions imposed to NPOs affect resources availability and imply in financial dependence on donations, investments or subsidies by external stakeholders. Funders, donors or investors may require different kinds of reporting such as financial, performance, and social impact reports, to assess their investments (Ebrahim & Rangan, 2014). In this sense, the definition of performance indicators can be profoundly influenced by stakeholders' requirements and, sometimes, not express the exact measure of interest to managers, which makes it difficult to define the criteria for performance measurement.

In the performance management and measurement (PMM) research field, the applicability of performance measurement systems (PMS) in NPOs and public administration has been considered a challenge because of the necessary alignment among metrics, PMS requirements and social aspects, especially social goals and mission (Ebrahim and Rangan, 2014). According to Micheli & Kennerley (2005), the identification of the public administration's and NPO's characteristics is crucial to an accurate design of a PMS. Besides that, the diversity of NPOs makes it difficult to define proper terminology and organizational characteristics, which in turn create a complex and subjective context for designing a PMS with all its particularities. Also, along the years, NPOs have professionalized their management, and legitimacy and accountability requirements have demanded high levels of efficiency and effectiveness (Kong, 2010a).

Usually, available frameworks for PMM were adapted from for-profit models, particularly their application in public organizations and other kinds of NPOs, but without considering their particularities. One of the most widespread frameworks in the literature is the Balanced Scorecard (BSC), developed by Robert Kaplan and David Norton and introduced in 1992 (Kaplan and Norton, 1992). Even with the development of other PMS or frameworks since then, BSC is still the mainstream approach and widely applied (Lee & Moon 2008; Somers 2005). During the advancement of research about PMSs, BSC was also considered and applied in the public sector. According to Hoque (2014), 23 papers were published regarding the public sector between the years 1992 and 2011. Other adapted frameworks for NPOs and public administration are also cited in the literature, such as the Performance Prism (Neely, Adams and Crowe, 2001).

Moxham (2009a) argues that studies related to PMS in the public sector are increasing, but the same cannot be said for NPO in general. According to Speklé & Verbeeten (2014), PMS has been a popular trend in public sector organizations in the last decades. Nevertheless, in others studies, the public sector is approached as a type of NPO (Karwan and Markland, 2006;

Valentinov, 2011). This, sometimes, is made even harder for there is not a consensus about NPO terminology and classification. Many types of organizations can be considered NPO, including universities, hospitals, trade unions, cooperatives, third sector institutions, volunteering organizations, regulatory agencies, charitable and welfare institutions, foundations, professional associations, and social enterprises, among others (Karwan and Markland, 2006; Moxham, 2009; Valentinov, 2011). In this study, all these types of organizations are considered NPO.

The adaptation of PMS from for-profit models is being criticized by scholars as it lacks strong theoretical foundations (Straub, Koopman and Mossel, 2010; Borst *et al.*, 2014). The majority of the available PMS designed by consultancy companies are not able to meet the performance measurement requirements for NPO and public administration, as they do not have a properly developed theoretical basis (Mouchamps, 2014). The following examples illustrate this.

In a study of PMS for hospitals, Leotta and Ruggeri (2017, p. 955) observe that the introduction of performance measurement frameworks often fails because of the different perspectives and interests of the actors during the process, “so that they have been rapidly put aside and substituted with further innovations”. The differences should be considered and also the healthcare context, besides the managerial techniques used by the organization. Martello, Watson & Fischer, (2016) describe the implementation of the BSC in a Rehabilitation Center, which addressed with equal emphasis the consumer and financial perspectives. According to the authors, this was performed because of the necessity to focus on the customer while maintaining financial stability.

A study developed by Reda (2017) points that despite adoptions of BSC by higher education institutions, the framework was not able to capture the core functions of this kind of organization, and the quality assurance practices are only marginally considered in the system. For Ozmantar & Gedikoglu (2016), the use of the BSC in educational settings should be designed with distinguishing dimensions that meet the institution’s strategy because the original dimensions (financial, customer, internal process, and learning and growth) are not wholly suitable. The authors present a study of the design and implementation process of the BSC in an educational institution in Turkey. Different stakeholders worked in the development process of this BSC and staff, teachers, students, and their parents contributed to the strategic plan development. The four dimensions of the BSC were not satisfactory to resolve the institution’s problems. Together with the researcher, they created new dimensions, and the BSC was remodeled with new aspects that were tested and applied in the school.

The process of designing or re-designing a PMS may be triggered by the intention to improve technologically, to provide innovation and increase usability (Kinder, 2012), but in many cases, because of the lack of positive evidence, there is no commitment or effort to provide human and financial resources for system design (Arena, Azzone and Bengo, 2015). Besides this, adapted tools require more effort to reformulate, making the development of a new framework or tool more interesting (Mouchamps, 2014).

Despite stakeholders' increasing pressure to report performance outcomes Moxham (2009a), PMS evolution has not yet been able to capture all performance dimensions of a public administration or NPO considering its dynamics and multiple goals. Micheli & Kennerley (2005) argued that there is a lot of key features to be considered in a PMS design for NPO and public administration, such as “understand the analogies and differences between public, non-profit and private sectors [...], to identify all the stakeholders involved in public and non-profit organizations [...], the main constituencies of the model and cause-and-effect relationships between them should be identified [...]; Finally, guidelines for implementation and use will have to be provided”. Also, it is necessary to fully understand their social aspects to represent them in measurable terms (Arena, Azzone and Bengo, 2015). The study about PMSs for social enterprises conducted by Mouchamps (2014) concluded that none of the performance measurement models evaluated – BSC, GRI (Global Reporting Initiative) and SROI (Social Return of Investments) offered adequate features to their particularities.

Moxham (2014) performed a systematic literature review (SLR) about organizations' performance measurement system design in the third sector and identified three drivers for performance measurement in third sector organizations collected in a review of 55 papers: accountability, legitimacy, and improvement of efficiency and effectiveness. In her findings, few papers study the design of performance measurement for the third sector, but guidelines to the measurement with the purpose of reporting outcomes and financial issues were found. Also, motivations for the use of PMSs are questioned.

Once NPOs and public administration share social responsibilities and have similarities regarding to performance measurement and considering the gaps in the previously mentioned studies about the design of PMS in NPOs and public administration, the purpose of this thesis is to identify the factors that influence the design of PMS in NPO and public administration and discuss the role that the design factors play in practical implications.

So, a first research question raises: *What are the factors that influence the design of performance measurement systems in NPOs and public administration?* A conceptual framework is performed and a social network supports the comprehension how they are related. In this way, this study enhances the knowledge about the motivations, drivers, barriers, or variables as investigated by Moxham (2014) and the concerns as described by Micheli & Kennerley (2005). The results provide a multi-disciplinary and holistic set of factors. Ten factors that influence the design of PMS in NPOs and public administration were found and represent an advance to operations management in terms of understanding those organizations through the lens of performance.

This study intends to discuss the features of the NPO and public administration through the lens of performance measurement and how these features influence the design of PMS for them. So, a second research question is indicated: *What is the role that the design factors play in some applications of PMS in nonprofit and public organizations?* A case study with 3 NPOs and 3 public administrations to test and discuss the relevance and applicability of the factors to managers, academic researchers, and practitioners in the design process of PMS for both kinds of organization is performed. The results point out that there are a variety of factors related to purpose, stakeholder, and management that can influence the design of the PMS for NPO and public administration and their unique organizational characteristics impact the usability and viability of the application of the PMS by them.

As a review exercise, this thesis uses the identified design factors to review a PMS implementation and operationalization process developed by Neely et al. (2002) with a set of steps to develop a PMS in any kind of organization. For that, this study uses two procedures and intends to answer a third research question: *How to conduct a performance measurement system design in NPO and public administration and how the design factors can support this process?*

First of all, the PMS implementation and operationalization process is reviewed by the enterprise engineering guidelines. This first analysis is justified by the intention to revise the PMS design approach through a diagnosis that is able to identify and incorporate missing functionalities considering a dynamic model. According to Deschamps (2013), an enterprise engineering guideline is defined as a practice of company design or principle related to the definition, structure, conception and implementation of the company operations as business processes communication networks. Also, a guideline in enterprise engineering provides an integrated flow of knowledge and material supported by enterprise modeling Bernus *et al.*

(2016). After this first review of the PMS implementation, and operationalization process, a second review is made through the lens of the design factors identified in the SLR and content analysis. Studies point that the traditional PMS use a business language and, because of this, its use cannot be encouraged in NPO and public administration as cited by Northcott & Taulapapa (2012).

1.1 Description of the problem and research gaps

NPO and public administration have different legal characteristics, but they resemble in aspects such as the pursuit of social value creation for their clients/beneficiaries. In recent years, these organizations have become under pressure to improve their management practices, their efficiency and effectiveness, and have sought to optimize performance measures with cost reductions, waste reduction, better allocation of available resources, professional motivation, volunteering, better channels of communication with stakeholders, and better practices for operations and services management (Popovich, 1998; Berman, 2014; Sinuany-Stern and Sherman, 2014).

Many studies have conducted initial investigations of performance measurement and management in these organizations, as can be seen in the works of Mouchamps, (2014); Lee & Nowell, (2015); Schwartz & Deber, (2016); and Bracci et al., (2017). Performance measurement is a conditional feature for management, and other studies are being extended to align performance measures definitions to the organizational strategy to provide a performance measurement system (PMS) that supports strategic management. The bibliometric analysis conducted in this project points that more than 220 papers were published during the period 1985 to 2015 which represent more than 90% of the papers of the SLR. Despite of this growth, the research area is not yet mature and there is no representative author associated with the topic. From the total of 525 authors of those 240 papers, only 33 published 2 or more papers, with 94% of the authors authoring only one paper.

Many different performance measurement frameworks have been developed and are well documented in the literature that may be applied in traditional enterprises, NPOs and in the public sector. But which framework fits best for each particular organization? Some researchers argue that the frameworks developed for the for-profit enterprises do not work in NPOs or in the public administration context. Micheli & Kennerley (2005) argue that the Performance

Prism, which focuses on a stakeholder perspective, has limited application for both NPOs and the public administration. Raus, Liu, & Kipp (2010) argue that the SROI (Social Return on Investments), derived from the well-known ROI (Return on Investments) concept, considers the social, financial and economic value, but not the operational and strategic value. Mouchamps (2014), in his study about the use of PMS for social enterprises argues that the SROI, the Balanced Scorecard (BSC), and the GRI (Global Reporting Initiative) do not present enough features to meet all organizational characteristics necessary for a complete framework in the context of social enterprises. The study developed by Reda (2017) with higher education institutions indicates that the BSC does not capture the core organizational functions and that there was a low sensitivity of the system to the efforts in quality assurance procedures. In the study about BSC in local government organizations by Northcott & Taulapapa (2012), some managers reported difficulties to use the BSC even after an adaptation of its dimensions to their context. indicating problems such as the lack of specific perspectives for leadership and governance, and the difficulty of translating key elements of the framework to the public sector context, such as what are measures, inputs, outputs, and outcomes.

In another hand, some studies show that some PMM or PMS are successfully implemented in NPOs and especially in public administrations as the study about BSC in a French public organization, when Dreveton (2013) argues that the framework was successfully implemented and its use supports the organizational strategy, the routine, and the control management. Although many authors suggest that an NPO has unique characteristics compared to public and private sector, Moxham (2009) challenge this understanding and argues that the essence of the frameworks developed for them can be applied in the NPO context too. Her findings suggest that the same drivers to use a PMS in private and public sector are present in NPO context: financial reporting, demonstration of achievements, operational control, and facilitation of continuous improvement. “The key difference was that the criteria used to measure nonprofit performance were seldom linked to performance improvement; this is contrary to the practices advocated in the private and public sector literature” (Moxham, 2009, p. 755). In a SLR performed by the author about third sector PMS design, three drivers emerged from the literature to the performance measurement in the third sector: accountability, legitimacy, and improvement of efficiency and effectiveness (Moxham, 2014).

These examples of frameworks studied in the context of the PMM indicate that for designing a PMS for the NPO and public administration it is necessary to understand what are the factors named as dimensions, barriers, drivers, and motivations, that influence this design, including,

among others, the legitimacy, stakeholders demands, organizational parameters, and how they are related to each other (Micheli & Kennerley 2005; Borst et al. 2014; Straub et al. 2010; Moxham 2009). According to Arena et al. (2015), these factors have to be capable of including the multiple goals regarding social, economic, and environmental performance.

Also, the understanding of this context contributes to set social goals for NPO and public administration that need to be translated into measurable terms. NPO and public administration are different legally but resemble each other in terms of pursuing social goals rather than financial gain for their investors or partners. Furthermore, the demands for accountability, especially because of donations, investments, and transparency are increasing. The lack of standardized processes for performance assessment in NPO and public administration makes it difficult to provide legitimacy and suggests one more reason to study performance measurement and indicators.

None paper collected in the SLR present a set of factors with so many aspects as presented in this thesis and the case study point their relevance in the design process in the NPO and public administration. Besides that, the difficulty to design a PMS with these organizations' characteristics does not encourage its use despite its importance to the management control and making-decision. So, this thesis presents a reviewed PMS design approach with a step-by-step that can support the design process. The research gaps and the authors that support these arguments can be summarized in three questions point in Figure 1.

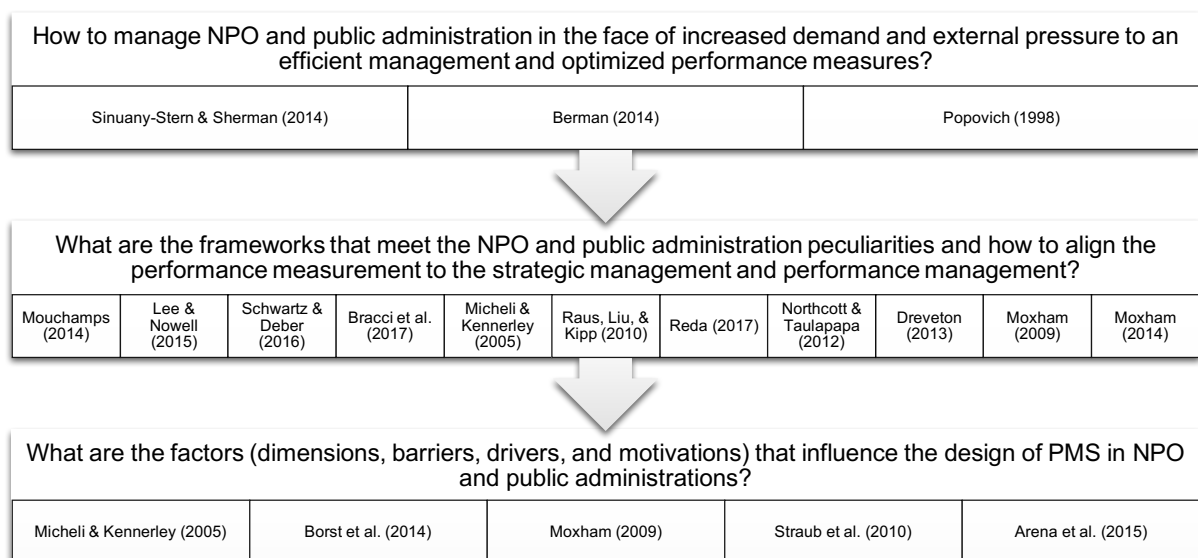


Figure 1: Research gaps

In this way, this research contributes to the research area of PMM, and to the control of the NPO and public administration regarding the new requirements to they operate with efficiency and effectiveness, attending demands of accountability and legitimacy for key-stakeholders and enriching their management, learning, and continuous improvement, and moreover, understanding the relevance of intangible aspects as social value creation and social impact.

1.2 Research objectives

The research purpose in this context is to identify and to describe what are the factors that can influence the design of PMS in NPO and public administration and point practical guidelines for the design process. This research presents four primary research objectives (RO) to reach this aim as indicated Table 1.

Table 1: Research questions and research objectives

Research question (RQ)	Research Objective (RO)
RQ1. What are the factors that influence the design of PMS in NPOs and public administration?	RO1. Examine the literature related to PMS in NPO and public administration.
	RO2. Identify, analyze and conceptualize the factors that influence the design of PMS in NPO and public administration.
RQ2. What is the role that the design factors play in some applications of PMS in NPO and public administration?	RO3. Describe the features of the NPO and public administration through the lens of performance measurement and how these features influence the design of PMS for them.
RQ3. How to conduct a PMS design in NPO and public administration and how the design factors can support this process?	RO4. Investigate how can one guarantee that a PMS does not become obsolete so that capabilities are developed for keeping it updated in a complex and dynamic environment.
	RO5. Suggest a review of PMS design approach for NPO and public administration.

The first objective is completed through an SLR that examines the research field about PMS in NPO and public administration and provide an overview concerning the evaluation of the research area supported by the bibliometric and network analysis.

The second objective is accomplished by the content analysis of the SLR about the design of PMS in NPO and public administration that provide a set of 10 factors characterized into three groups by association. The factors were identified and intensely studied and, for each factor, a definition is proposed based on the literature review and a conceptual model is introduced.

The third objective is completed through a case study performed with six organizations (3 NPOs and 3 public administration) aiming to investigate and test the set of factors in practice.

The fourth and fifth objectives work to propose practical implications in the design process to support the managers, practitioners, and researchers to reach all particularities of NPO and public administration. For that, the first review of a well-known PMS implementation and operationalization process is analyzed in order to contribute to a contemporary system considering a complex and dynamic environment. The PMS implementation and operationalization process is considered applicable for any kind of organization, i.e., private, nonprofit or public sector. The examination of the PMS by the enterprise engineering guidelines work to guarantee a complete approach which can help the diagnosis and the redesign of a system to incorporate missing functionalities considering a dynamic model. After that, the last objective is reached by a second review of the PMS implementation and operationalization process using the identified design factors to provide a customized process for NPO and public administration. A set of papers were conducted to answer each research question and is indicated in Table 2.

Table 2: Research questions and papers

Phase	RO	Papers	Journal
Mapping literature	RQ1	Performance measurement in nonprofit organizations & public administration: A literature review	Measuring Business Excellence
Content analysis		Designing performance measurement systems in nonprofit organizations and public administration	International Journal of Operations and Production Management
		Design factors of performance measurement system in nonprofit organization and public administration	Public Administration Review
Case study	RQ2	Designing performance measurement system for nonprofit and public organizations: a study based on multiple cases	Journal of Management Studies
PMS implementation and operationalization process	RQ3	An enterprise engineering-based revision of the performance measurement systems implementation and operationalization process	Operations Management Research

During the process of the research, papers were developed to international conferences and journals to provide an opportunity for comments and suggestions by qualifiers referees.

Table 3 shows the whole list of the papers performed in the development of this thesis.

Table 3: Research outputs

Phase	Research outputs	Journal/Conference	Classification	Year
Mapping literature	Performance measurement systems in nonprofit organizations: a systematic literature review	American Society for Engineering Management 2015 International Annual Conference	International conference	2015
	Performance measurement systems in nonprofit organization: a bibliometric analysis	American Society for Engineering Management 2016 International Annual Conference	International conference	2016
	A bibliometric analysis of performance measurement systems in non-profit organizations: cocitation analysis	American Society for Engineering Management 2017 International Annual Conference	International conference	2017
	Performance measurement in nonprofit organizations & public administration: A literature review	Measuring Business Excellence (under review)	- B1 - Q2	-
	Performance measurement systems in nonprofit organizations: A study based on authorship analyses	Public Management Review (will be submitted)	- A1 - Q1	-
	Performance measurement in nonprofit organizations: A research agenda	International Journal of Management Reviews (will be submitted)	- Not available - Q1	-
Content analysis	Factors for design of performance measurement systems for not-for-profit organizations	2016 Industrial and Systems Engineering Research Conference	International conference	2016
	Identifying the factors that influence the design of performance measurement systems in not-for-profit organizations	American Society for Engineering Management 2016 International Annual Conference	International conference	2016
	Designing performance measurement systems in nonprofit organizations and public administration	International Journal of Operations and Production Management (under review)	- A1 - Q1	-
	Design factors of performance measurement system in nonprofit organizations and public administration	Public Administration Review (under review)	- A1 - Q1	-
Case study	The performance measurement in nonprofit organizations – a case study	2017 Industrial and Systems Engineering Conference	International conference	2017
	A case study extension methodology for performance measurement diagnosis in nonprofit organizations	International Journal of Production Economics (under review)	- A1 - Q1	-
	Designing performance measurement system for nonprofit and public organizations: a study based on multiple cases	Journal of Management Studies (under review)	- A1 - Q1	-
PMS implementation and operationalization process	PMS design process improvement through Enterprise Engineering recommendations	22 nd International Conference on Production Research. ICPR Americas 2014	International conference	2014
	Manufacturing Strategy Design Process Improvement Through Enterprise Engineering Recommendations	2015 Industrial and Systems Engineering Research Conference	International conference	2015

	RBV design process improvement through enterprise engineering recommendations	American Society for Engineering Management 2015 International Annual Conference	International conference	2015
	An enterprise engineering-based revision of the performance measurement systems implementation and operationalization process	Operations Management Research (under review)	- B1 - Q1	-

Table 3 indicates two classifications of the journals by SCImago (which one ranks the quality of journals in quartiles Q1, Q2, Q3, and Q4, where Q1 is high quality and Q4 is lesser quality) and Qualis (which one ranks the journals between A1, A2, B1, B2, B3, B4, B5, and C where A1 is high quality and C is lesser quality). Also, the year of publication or submission is indicated. All papers under review are indicated too.

1.3 Overview of thesis document

This section presents an overview of the structure of the thesis document. The thesis is organized in four main phases and is classified as a qualitative research as explained by Ketokivi & Choi (2014, p. 233) when the qualitative one is a “research approach that examines concepts in terms of their meaning and interpretation in specific contexts of inquiry.”

Erro! Fonte de referência não encontrada. presents an overview of the project and the main results. The figure points the four main phases of the research design: mapping literature, content analysis, case study and PMS design approach. For each phase, a black box indicates the research stages as the SLR and the followed analyses: bibliometric, and keywords analysis. After that, a blue box indicates the research question and a green box points the outcome of that phase. The set of green boxes represents the central contribution of each phase.

The document is organized in five chapters: the introduction, the research design, the theoretical background, the findings and conclusion. Followed by the introduction with the indication of the problem definition, research gaps, research questions and objectives, the second chapter presents the theoretical approach that supports the comprehension of the research gaps and opportunities of study. After that, the research design explains the four phases and the research stages developed as well the research details and the methods are presented.

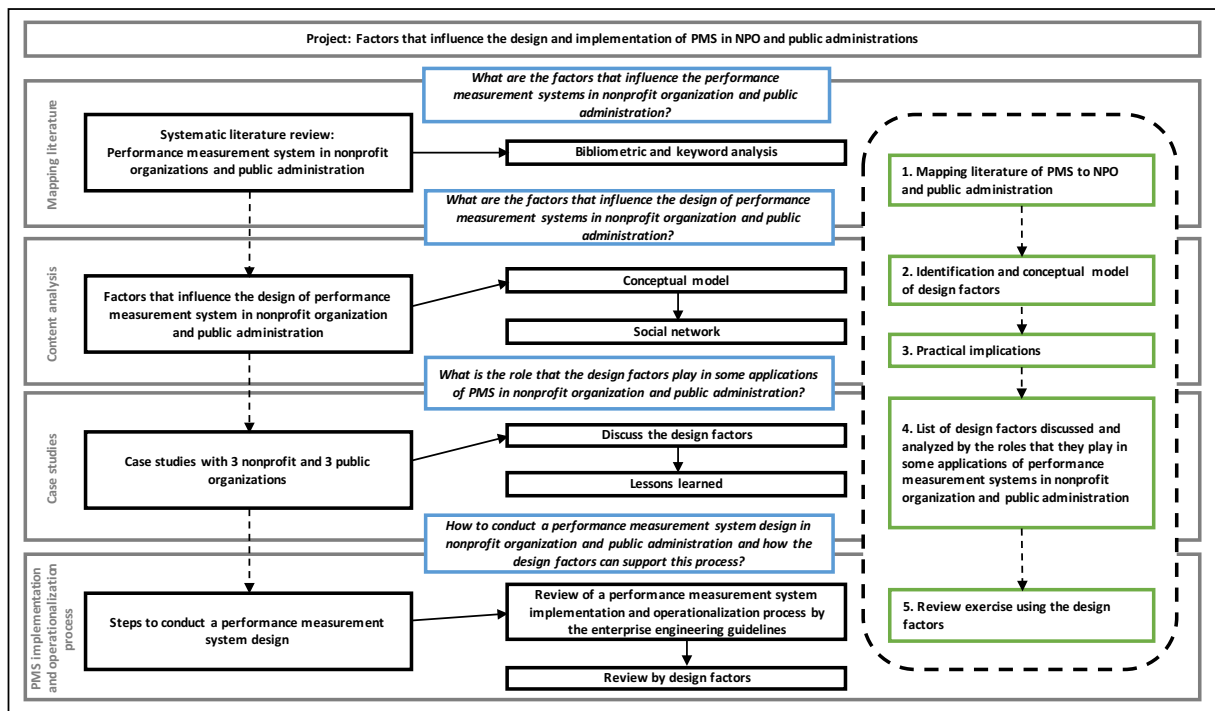


Figure 2: Overview of the project and main results

The chapter of findings and discussion present the main results of each phase of the research design. The mapping literature phase presents the bibliometric and keyword analysis which helps to position the research and contribute to the understanding of the area. The content analysis presents the identification of the factors and the conceptual model, as well practical implications. In the case study phase, a discussion of the design factors and lessons learned through case studies with six organizations indicate the roles that the factors play in the PMS application in the studied organizations. The knowledge of the design factors provided through this study offers the possibility to use the design factors set to review a PMS implementation and operationalization process and provide a step-by-step to support the design or review process of the PMS in NPO and public administration. For that, a first review through the enterprise engineering guidelines helps to offer an approach with a holistic view and complete functionalities.

The last chapter presents the conclusion, including the research contributions, limitations, and recommendations for future research. The complete version of the papers indicated in Table 2 is presented in the Appendix A.

2 THEORETICAL FOUNDATION

This chapter presents the theoretical background about management control and performance, including the use of the performance measurement and management, as well the performance measurement and management in NPO and public administration and a synthesis of the theoretical concepts are presented.

Also, insights about PMS requirements, how enterprise engineering can help in the diagnosis and re-design of an organizational system, and the enterprise engineering guidelines used as one of the bases for this work is presented and this knowledge will support the review of a PMS implementation and operationalization process for NPO and public administration.

2.1 Strategic management and performance

How to control the organizational management is a critical issue in the routine for any kind of business. As explained by Merchant & Stede (2017, p. 3), “management control failures can lead to large financial losses, reputation damage, and possibly even organizational failure”. The control is one step of the management process which includes objective setting, that can be financial and non-financial, strategy formulation, and then the management control. According to Demartini (2013), there is no a consensus on the meaning of the term of ‘management control’ but the evolution of the theme reveals that it is a primary function in the organizational management, linked to the planning and control, and to all levels of the organization, covering the pursue by efficiency and effectiveness, and more recently, related to the corporate governance and the risk management too.

The relation between operations strategy and the search for high-performance organizations drive the latter to measure and manage their activities and outcomes by developing PMM systems from the management control perspective. The PMS is not enough for organizational management by itself but sustains the performance management system. According to Neely *et al.* (1996), performance measurement is “the process of quantifying action, where measurement is the process of quantification and action correlates with performance” and supports the performance monitoring by managers (Poister *et al.* 2014). As explained by Melnyk *et al.* (2014, p.175), “the performance measurement system encompasses the process (or processes) for setting goals (developing the metric set) and collecting, analyzing, and interpreting performance data.”

In the same way, Schwartz & Deber (2016) explain that performance measurement is input to its management, and its design can be conducted to identify where to make the improvements. In this way, the concept of PMM is crucial to reach effectiveness and efficiency. “PMM facilitates effective control and correction by reporting the current level of performance, and comparing it with the desired level of performance (i.e., the standard)” (Melnik et al. 2014, p. 173).

As an integrated system, a better understanding about each component of PMM is necessary, i.e., the measurement and the management. According to Pinheiro de Lima et al. (2013), the different roles of PMSs provide the increase of organizational effectiveness and efficiency, contribute to strategy management, monitoring of results and support performance management through goals such as:

“Produce positive change in organizational systems and processes”, “Develop a continuous improvement capability through implementation and management of an integrated operations strategic management system”, “Produce positive change in organizational culture”, and “Provide a closer understanding of market needs to create a perceived value for customers” (Pinheiro de Lima *et al.* 2013, p. 531).

Performance management consists in how a manager uses the performance measurement to manage the organizational performance (Bititci, 2015). As explained by (Melnik et al. 2014, p. 175):

The performance management system encompasses the process (or processes) of assessing the differences between actual and desired outcomes, identifying and flagging those differences that are critical (thereby warranting management intervention), understanding if and why the deficiencies have taken place, and, when necessary, introducing (and monitoring) corrective actions aimed at closing the significant performance gaps.

The two components of PMM work in an iterative process and, because of this, performance measurement “has moved towards examining the organisation as a whole, and impacting to a greater extent upon strategy” (Folan & Browne, 2005, p. 674). In this context, (Bititci, 2015, p. 27) argues that performance measurement refers to a technical control, i.e. “the more rational, bureaucratic or ‘processy’ approach, focusing on structural elements of the organisation” while performance management is a social control, i.e. “the cultural and behavioural control achieved through personal interactions between people”.

Bourne et al. (2017) argue that the current paradigm of PMM is related to the control systems perspective based on its approach to resources control and management. Because of this, other studies were developed to align the performance measure definition to the strategy and, in this way, PMM will be able to support making decisions and strategic management control. Hourneaux Jr, Carneiro-da-Cunha, & Corrêa (2017) developed a study to assess the use of PMM in small and large organizations through the perspectives of monitoring and control, focus of attention to provide the organizational communication, strategic making-decision, and legitimacy. The results show that large organizations have more concern to use monitoring and control indicators and this can be explained by their size and consequently complexity and necessity of more levels of control.

Indeed, studies about PMM are being directed to address the complexities of organizations in a dynamic environment over time. Yadav & Sagar (2013) categorize the transitions of PMM in 3 phases: management accounting, financial perspective, and integrative perspective linking strategy, quality, and excellence to the financial perspective. The history of PMM begins in the early nineteenth century with accounting-based performance measures, but around 1920s the return on investment (ROI) and other frameworks were created in an attempt to improve the analysis through financial ratios. A revolution in PMM is noticed through the BSC framework introduced by Kaplan & Norton (1992) that go beyond financial measures and introduces operational and strategic performance measures. Since then, new frameworks have been developed in an attempt to improve PMM. The Performance Prism assists performance measurement selection and adopts a stakeholder perspective through 5 facets, allowing a long-term focus: “stakeholder satisfaction, stakeholder contribution, strategies, capabilities and processes” (Yadav & Sagar, 2013, p. 958). Table 4 summarize the main performance measurement and management frameworks until 2007.

With the New Public Management framework, many public health systems have developed their own PMM as a strategy of government reform to go beyond traditional measurement and performance monitoring (Schwartz & Deber, 2016). Some PMSs were developed for healthcare (Peurseem, Lawrence & Pratt, 1995) and for social enterprises, such as the indicators map that considers three dimensions: economic and financial performance, social effectiveness, and institutional legitimacy, developed by Bagnoli & Megali (2011).

Table 4: Performance measurement and management models and frameworks

Period of introduction	Name of the model/framework	References
Before 1980s	The ROI, ROE, ROCE and derivatives	(Simons, 2000)
1980	The Economic Value Added Model (EVA)	(Stewart, 2007)
1988	The Activity Based Costing (ABC) – The activity based management (ABM)	(Cooper and Kaplan, 1988)
1988	The Strategic Measurement Analysis and Reporting Technique (SMART)	(Cross and Lynch, 1988)
1989	The Supportive Performance Measures (SPA)	(Keegan, Eiler and Jones, 1989)
1990	The Customer Value Analysis (CVA)	(Customer Value Inc, 2007)
1991	The Results and Determinants Framework (RDF)	(Fitzgerald <i>et al.</i> , 1991)
1992	The Balanced Scorecard (BSC)	(Kaplan and Norton, 1992)
1994	The Service-Profit Chain (SPC)	(Heskett <i>et al.</i> , 1994)
1995	The Return on Quality Approach (ROQ)	(Rust, Zahorik and Keiningham, 1995)
1996	The Cambridge Performance Measurement Framework (CPMF)	(Neely <i>et al.</i> , 1996)
1996	The Consistent Performance Measurement System (CPMS)	(Flapper, Fortuin and Stoop, 1996)
1997	The Integrated Performance Measurement System (IPMS)	(Bititci, Turner and Begemann, 1997)
1998	The Comparative Business Scorecard (CBS)	(Kanji, 1998)
1998	The Integrated Performance Measurement Framework (IPMF)	(Medori and Steeple, 2000)
1999	The Business Excellence Model (BEM)	(EFQM, 2007)
2000	The Dynamic Performance Measurement System (DPMS)	(Bititci, U, Turner and Begemann, 2000)
2001	The Action-profit Linkage model (APL)	(Epstein and Westbrook, 2001)
2001	The Manufacturing System Design Decomposition (MSDD)	(Cochran <i>et al.</i> , 2001)
2001	The Performance Prism (PP)	(Neely, Adams, 2001)
2004	The Performance Planning Value Chain (PPVC)	(Neely and Jarrar, 2004)
2004	The capability economic value of intangible and tangible assets model (VEVITA™)	(Ratnatunga, Gray and Balachandran, 2004)
2006	The Performance, Development, Growth Benchmarking System (PDGBS)	(St-Pierre and Delisle, 2006)
2007	The Unused Capacity Decomposition Framework (UCDF)	(Balachandran, Li and Radhakrishnan, 2007)

Adapted by Taticchi, Balachandran, & Tonelli (2012)

Particularly to PMS, research about it is not enough if the analysis focus on how the organizations adopt the systems, how they developed and what are the factors that can influence their design and implementation. Some papers can be cited as the research produced by (Toni & Tonchia, 2001; Chenhall, 2005; Gosselin & Maurice, 2005; Waal & Kourtit, 2013). Usually, the studies are related to the effectiveness of the system and its features (Chenhall, 2005; Silvi *et al.*, 2015). The survey developed by (Silvi *et al.*, 2015), for example, with more than 80 Italian medium-large sized firms, points that many of them did not develop non-financial measures systematically aligned to the strategy, so the use of the system looks like just an incremental approach but not effective. Thus, it is essential to define an approach that supports the alignment between the strategy and the management control and provide a complete and constructive PMM.

2.2 Performance measurement and management in NPO and public administration

While new frameworks were developed and others were adapted, there is some skepticism about their usability and feasibility in public and nonprofit environments (Moxham, 2009; Sole and Schiuma, 2009). Lee & Nowell (2015) comment that financial and competitive pressures have contributed to the use of PM tools by these organizations. Moreover, Holzer & Kloby (2005) indicate that external influence, e.g. control spending, increasing the accountability practice and the search for the performance measurement in the public sector context. In fact, Poister et al. (2014) consider that there is a movement to professionalize the management in public administration, considering business approaches as PMS and strategic planning. Besides that, Halachmi (2005) points out that some reasons have led the public sector to use the PMS as the fiscal requirements for efficiency and responsiveness. Greiling (2005) complements observing these changes in public budgeting which also include outcomes indicators and planning process, reporting through the accountability practice, contract management which covers information about quality indicators of the services, benchmarking, internal diagnosis, decision-making process, and strategic management system.

Borst *et al.* (2014) argue that the PMS for the public sector is a controversial issue. According to them, the public sector has multiple stakeholders which imply in various and different performance measures. So, simple frameworks for PM are not applicable for the public administration. Even for any type of NPO, as observed by Micheli & Kennerley (2005), few attempts were conducted for designing a generic PM framework.

Bititci *et al.* (2012) point the increase of the studies about PMS considering the collaboration across global multicultural networks, including the impacts for small and medium enterprises and NPO, including the public sector, and considering their fundamental and significant role in global production networks. According to Lee & Nowell (2015), although the adaptations of the PMSs for NPO context and the evolution in the research area, all the divergent perspectives are not been considered yet and “these efforts have tended to be more narrow than holistic in focus (e.g., focusing on financial performance), and have not attended to the specific performance dimensions of the nonprofit sector”. The authors reveal some core perspectives in the performance study in the NPO context: NPOs work in challenge environments through adequate resources for that; the performance is seen in the organizational capacity; the use of evaluation programs; the academic research should consider the study to assess the value of the NPO for society; NPO should consider the degree of their contribution for their beneficiaries;

contemporary frameworks consider a view of the NPO with a complex stakeholders' relationship.

The SROI is a model for analysis of the value created by an enterprise adapted from the ROI. Raus, Liu, & Kipp (2010) point that this framework considers the social value, and financial/economic value, but not the operational, and strategic/political value. About the Performance Prism, Micheli & Kennerley (2005) argue that "evidence of the application of the performance prism in the public and non-profit sectors is limited".

The BSC is also an example of adaptation of a PMS framework originally conceived for for-profit organizations to the context of NPO, and its use is quite popular among for-profit and in the public sector. The BSC considers four perspectives: financial, customer, internal business processes, and learning and growth (Kaplan & Norton, 1996). However, Kaplan argues that NPO also have specific performance measurement demands, compete for donors, funders, and subsidies, and need a framework which supports their characteristics (Kaplan, 2001). Although the BSC has the financial perspective at the top of the scorecard, Kaplan agrees that the mission of those organizations should be at the top and it "represents the accountability between it and society - the rationale for its existence" (Kaplan, 2001, p. 360).

Even so, some studies point that the BSC is not so appropriate for the NPO and public administration context. Northcott & Taulapapa (2012) studied the BSC in the public sector context identifying some limitations to its implementation related to the difficulty to work with efficient causality relations (Kong, 2010a, p. 298), related BSC and intellectual capital concepts to social service nonprofit organizations (SSNPOs) and argues that:

Although the modified BSC has made a compelling case for the inclusion of both financial and non-financial metrics in a strategic management system, the model does not address important aspects of nonprofit strategy such as social dimensions, human resource elements, political issues and the distinctive nature of competition and collaboration in social service nonprofit settings (...). Thus SSNPOs must place social dimensions at the centre of their strategy since these are often the *raison d'être* of the organizations' existence in the society (italics in original).

Arena, Azzone, & Bengo (2015) studied PMSs for social enterprises and argued that the adoption of the BSC for this kind of organization does not provide a complete system, particularly considering their organizational characteristics, including their hybrid nature. According to them, those adaptations do not present a consistent analysis of social impact, multiplicity and interests of stakeholders, because these are complex indicators that can be hard

to be measured.

Bracci, Maran & Inglis (2017) analyzed the process of BSC design and implementation in two Italian public service organizations and observe that while one case the process was successful, the another was a failure. According to the authors, problems with the definition of strategic objectives, internal resistance, and external influences compromised the performance measures definition and made work difficult. They suggest a combination of the BSC design including “external (political/social) and internal (cultural) organizational environment”.

In the research related to law and justice organizations, Pekkanen & Niemi (2013) argue that the PM programs in the studied organizations had the goal to increase the productivity highlighted the outputs efficiency measures but “led to inappropriate measurement of output quantity and efficiency without understanding and analyzing the causal effects on other aspects of the organization’s performance”. According to the authors, the performance measures should be designed in a balanced view to help the managerial tools considering the management style in the studied organizations. On the other hand, MacBryde *et al.* (2014) present a case study in defense sector that applied successfully the BSC. They identified that the use of the BSC resulted in benefits, e.g. bottom-up positive changes, cohesion in the departments, and keep the focus in efficiency gains.

In the study related to public PM in the Italian environment, Barbato & Turri (2017) point that the intense pressures by legal obligations and agencies’ resolutions influence the use of PMS and a development of multidimensional indicators. Those several pressures for the adoption of a measurement tool produce internal tensions, and its design and implementation are not done entirely and satisfactory. So, the result is a system not used as a management tool, but only a tool for a fulfillment of legal requirements which increase the legitimacy for external stakeholders. According to the authors, many public organizations don’t use the PMS for an extended period of the year, prioritizing only the mandatory roles.

Research about PMSs is focused on their effectiveness and not in the understanding of their design and implementation demands, without many options of PMSs being academically studied for NPO and public administration. According to Folan & Browne (2005), many options of PMSs were developed as a mix of various PM frameworks resulting from best practices analyzed in companies. Also, for Silvi *et al.*, (2015b) the adaptations made were focused on adding non-financial measures, however, without the concern in organizational factors to characterize a PMS with a social perspective. Although studies try to describe or assess PMSs

for those organizations, few attempts were conducted for generic framework design/development for these organizations (Pietro Micheli & Kennerley, 2005).

Besides the skepticism in the use of PMSs or PMM from traditional for-profit enterprises, resistance to use them can be either internal or external. Sometimes there is resistance from staff to use a new or complex software (Cordery & Sinclair, 2013; Arvidson & Lyon, 2014). Yet some stakeholders have their own requirements and because of this, NPO and public administration must use what is acceptable by them for accountability and legitimacy purposes (Karwan & Markland, 2006; Amado & Santos, 2009; Arvidson & Lyon, 2014).

The process to design or re-design a PMS may be undertaken by the intention to improve technologically, to provide innovation and increase the usability (Kinder, 2012) but in many cases, because of the lack of positive evidence, there are no commitment and effort to provide human and financial resources for system design (Arena, Azzone & Bengo, 2015). In this way, some reasons can be indicated to encourage the use of PMSs by these organizations. Waal & Kourtit (2013) summarizes the reasons for PMM use for enterprises and some of them are strongly related to the NPO and public administration context: stronger accountability (related to legal obligations for accountability that an NPO and public administration must provide), handling the increase in complexity of the organization (related to the complexity of operations due to alternative sources of income and financial restrictions), better description of mission, strategy and goals (related to social mission and goals definition), and better understanding of necessary knowledge and skills of people (related to employees and especially volunteers).

The set of reasons to use PMS corroborates with the concern to provide an adequate and useful system for these organizations and, therefore, the factors that influence their design need to be identified and studied. This research provides some answers to the gaps identified in the PMM research literature, focusing in the performance measurement as the first step to reach a complete PMM for NPO and public administration, providing a set of factors to be considered in PMS design.

Figure 3 synthesizes the central theoretical concepts exposed in the last two sections and provides a view of the performance measurement understanding and the NPO and public administration characteristics.

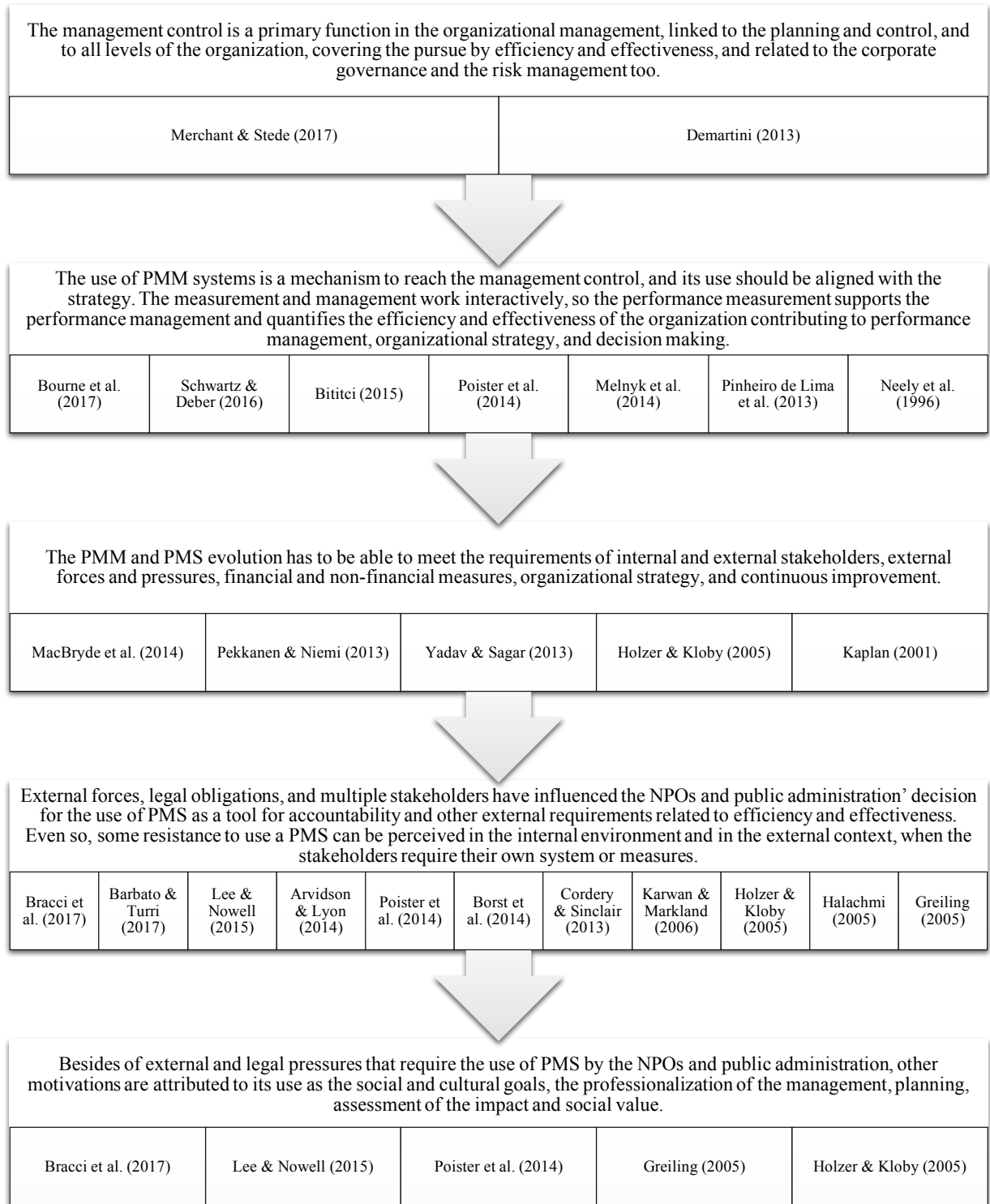


Figure 3: Synthesis of theoretical concepts on PMM evolution and its application in NPO and public administration

In this way, the relevance of the study to identify the factors that influence the PMS for these organizations can be explained by the necessity of design and development process considering all organizational perspectives to include the PM in its administration.

2.3 Performance measurement design and enterprise engineering

This section presents insights about PMS requirements, how enterprise engineering can help in the diagnosis and redesign of an organizational system, and the enterprise engineering guidelines used as one of the basis for this work.

2.3.1 Performance measurement systems requirements

Systems might vary regarding the way they integrate information, operations and strategy. A systematic literature review carried out by Wieland *et al.* (2015) about processes in PMS points out that these systems should be aligned to the strategy in order to provide content for goals, metrics, tools and governance. In fact, as observed by Munir & Baird (2016) and Folan & Browne (2005), a PMS must have managerial support, involve employees in the development of indicators, present relevance to the workers' everyday practice, take part in the feedback of evaluation processes, contribute to strategic decision-making, planning, and control of assignments to succeed in its goals.

The study of Munir & Baird (2016) about the influence of institutional pressures on PMSs shows that contemporary systems, i.e. a PMS with financial and non-financial metrics, are not broadly used by enterprises and public organizations. Their empirical results point out that the studied organizations had to adapt their PMSs to meet stakeholders and regulatory requirements. Hence, in practice, the design of PMSs is influenced by internal and external factors, with more diverse and multi-dimensional performance measures used, as also highlighted by Ross *et al.* (2010).

According to Chenhall, (2005a), strategic feedback provided by PMS is the basis to improve competitiveness, both by product differentiation and cost competition. According to Parida *et al.* (2015, p. 4) "two key components need to be considered to move from performance measurement to performance management: the right organizational structure, which facilitates

the effective use of performance measurement results; and the ability to use performance measurement results to bring about change in the organization”. Bourne *et al.* (2000) add that PMSs require effective mechanisms of target and pattern revisions, besides individual measurements which are adaptable to circumstances, and mechanisms that periodically evaluates the set of measures and that can be used to evaluate strategic assumptions.

It is a challenge to present an adequate PMS considering all internal and external (when applied) requirements. Kennerley & Neely (2003) explained that a well-designed PMS follows an evolution cycle based on:

- processes: for revision, changes and measure implementation;
- people: with competence to use, reflect, modify and implement measures;
- systems: flexible and available for collection, analysis, and processing of information;
- culture: bearing in mind the importance of measurements.

The literature review conducted by Bourne *et al.* (2005) reveal seven factors associated to key processes in the use of performance measures that should be considered in PMS design: the linking to strategic objectives; the method of data capture; data analysis; interpretation and evaluation; the provision of information and communication; decision-making; and taking action. For Gomes *et al.* (2004), the focus on organizational effort must be seen from the perspective of continuous improvement, not only on productivity or employees’ efficiency.

Considering the presented context, the design of PMSs should be established on a consolidated basis that meets all needed dimensions, drivers, and requirements.

2.3.2 Enterprise Engineering guidelines

Deschamps (2013) considers that the study of enterprise engineering could help the diagnosis and the redesign of PMSs to incorporate missing functionalities considering a dynamic model. The enterprise engineering discipline includes several research topics and contribution areas, namely modeling, optimization, analysis, business processes, information systems, organizational design, structure and organizational objectives, among others, which makes the

term very broad. In this context, Giachetti (2004, p.1149), define that enterprise engineering works “to model, analyse and design enterprise systems”. Bernus *et al.* (2016) complements this knowledge explaining that beyond providing information for the design and redesign of businesses, enterprise engineering also provides knowledge about then integrated flow of knowledge and material, supported by enterprise modeling. As Kosanke *et al.* (1999) explain, enterprise engineering concerns itself with the enterprise’s whole operations to improve efficiency and effectiveness through the integration of people, machines, and computers.

An enterprise engineering guideline is defined as a design principle related to the definition, structure, conceptualization or implementation of operations or business processes as communication networks. The set of enterprise engineering recommendations proposed by Deschamps *et al.* (2013) established 12 guidelines, listed in the Table 5.

Table 5: Enterprise Engineering guidelines

#	Enterprise Engineering Guidelines
1	Process design and execution must be aligned with organizational context (e.g. organizational goals, organizational values, organizational culture, organizational performance, technology and people)
2	People involved in a process must participate in its design
3	Processes must be clearly defined (e.g. objectives, roles, responsibilities, capabilities, performance, information and interfaces)
4	Capabilities of resources in a process must be aligned with expected process performance
5	Information structure must be based on open standards to ensure interoperability with different systems
6	Specifications for the interface channels within a process value chain must be defined
7	Process models and their elements (e.g. objectives, roles, responsibilities, capabilities, performance, information and interfaces) must be reusable throughout the organization and its value chain
8	Processes must explicitly support management/control (e.g. synchronization, decision-making, delegation and coordination) within a process and with other processes
9	Process design must address different types of exceptions
10	Process design and execution must incorporate mechanisms for change/improvement detection/management
11	Process semantics must be coherent and consistent throughout all processes
12	Information related to the performance of the process and the organization must be collected

An example of the application of the 12 enterprise engineering guidelines is the research developed by Silveira *et al.* (2017), in which it is proposed a structured process for Hoshin Kanri implementation based on a strategic management framework that integrates strategy and operations execution. Deschamps *et al.*'s (2013) enterprise engineering guidelines contribute to this process design task by making it consider a more comprehensive approach.

The following section presents the research design and the applied techniques, and the papers in Appendix A provides complementary theoretical concepts.

3 RESEARCH DESIGN

The research design of this study was developed aiming at the identification of the factors that influence the design of PMSs in NPOs. Once the public administration and NPOs working focusing on the social purpose, the outputs of this study show that the public sector as an application domain is a result of literature review in NPOs too. In fact, some studies approach both organizations to the research of performance measurement and so on, this research cover the study to identify the design factors of PMS for NPO and public administration. The following phases of the research design explore this context better. Figure 4 shows the list of the phases described in this section.

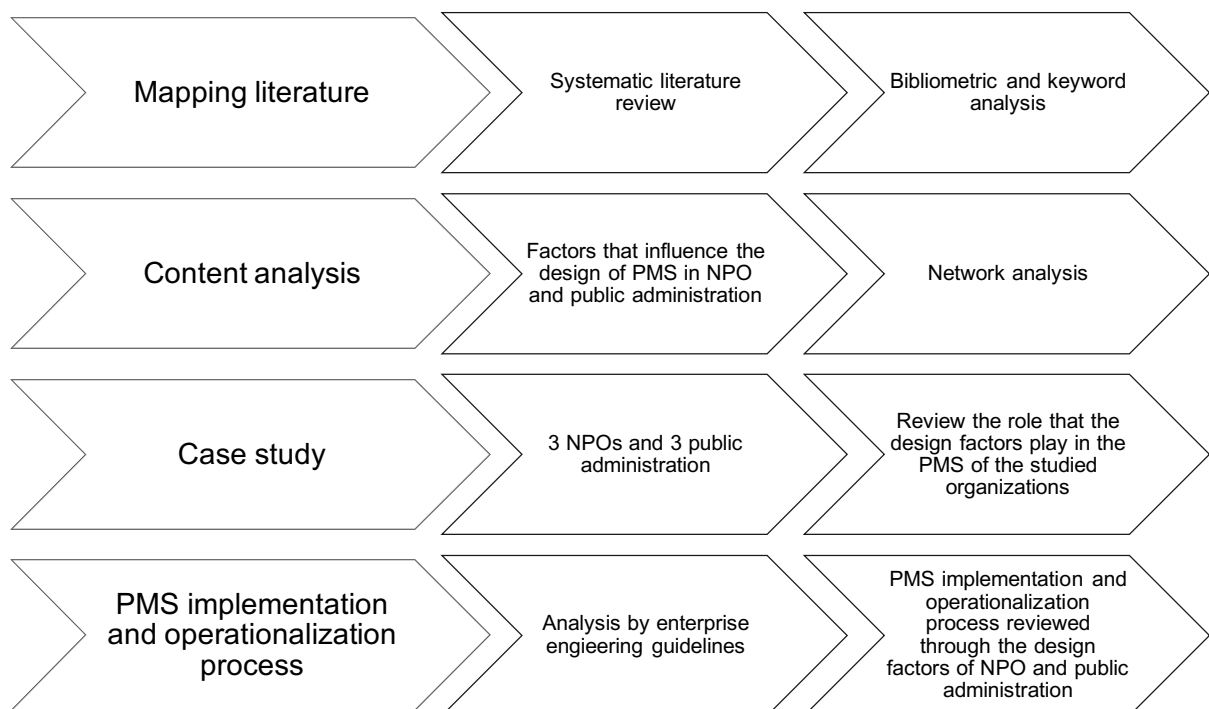


Figure 4: Phases of the research design

Each phase and the respective steps of the research design developed in this thesis are described in the next sections.

3.1 Mapping literature

This section details the steps related to the SLR and the applied techniques of bibliometric and keyword analysis. It is important to note that, in this moment, the research was not refined to design yet, i.e., all papers in the portfolio related to public administration, foundations or private institutions, associations, non-governmental organizations, social enterprises; and performance measurement systems, performance indicators/measures, design, implementation, use or review processes were examined by the bibliometric, and keyword analysis.

3.1.1 Systematic literature review

The first phase was conducted to mapping the literature about the PMS in NPO. In the first step, the method of SLR was applied to map the body of knowledge of this field and to generate significant information about the theme. Despite the importance of the literature review for research in general, scholars notice that some reviews in the management field are more narrative and subjective, and because of this, the SLR begins to be used offering a transparent and replicable process that considers all relevant studies identified through a rigorous protocol (Tranfield, Denyer and Smart, 2003; Andreini and Bettinelli, 2017).

In this sense, in Phase 1 of this research, an SLR was carried out to identify works that addressed performance measurement in NPOs through a comprehensive literature review using the approach described by Keathley (2016) in a study about the factors that affect the successful implementation of PMSs. The author argues that this model, besides the increased rigor, also provides a method to identify all relevant publications. Figure 5 indicates the steps developed in Phase 1, which are explained next.

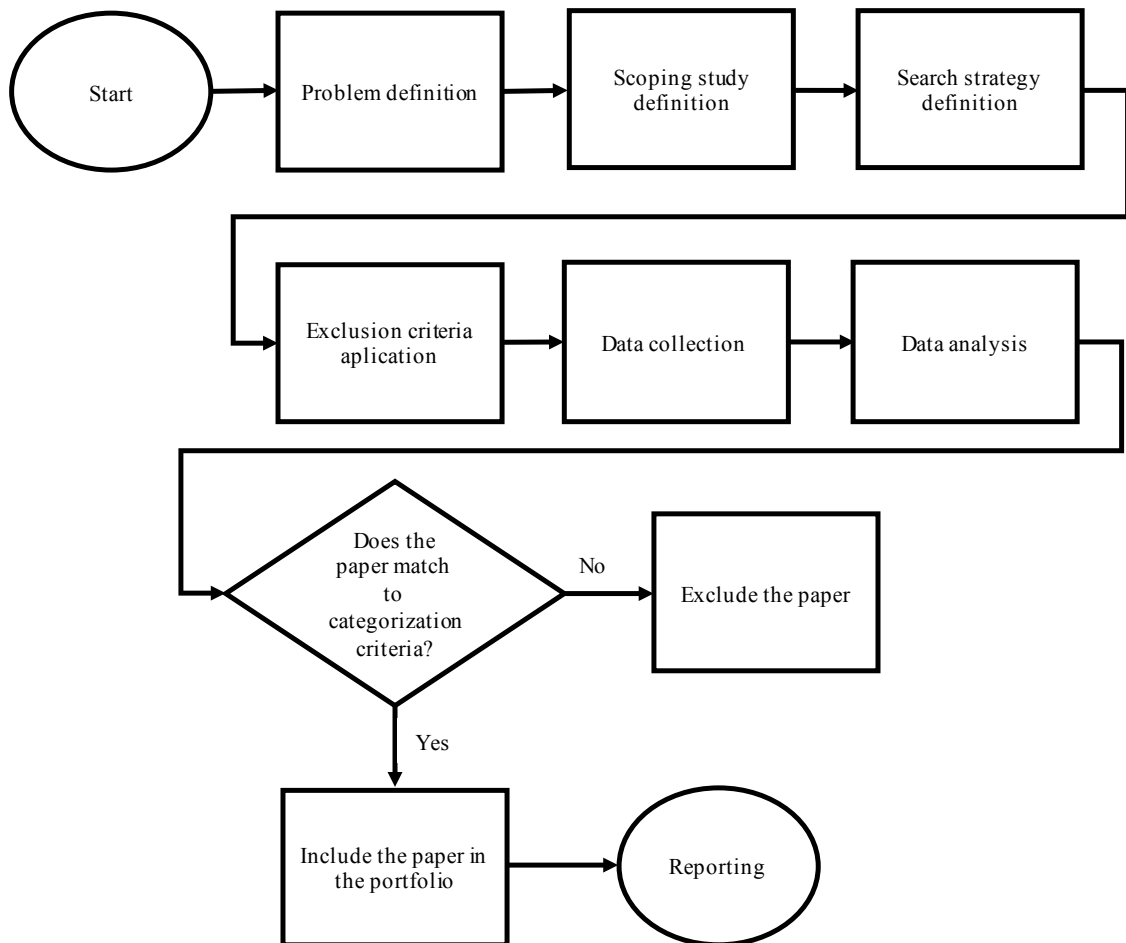


Figure 5: Mapping literature - systematic literature review

Problem definition

The central question that guided the SLR, in the problem definition stage, was "*What are the factors that influence the design and the implementation of PMS in NPOs?*". Implementation factors were also considered (although not analyzed in this phase of the project), as this was the extended scope of the overall research project in which this study is included.

Scoping study definition

The search terms were established by iterative testing on the platforms Science Direct, Taylor & Francis, Scopus, Springer, Wiley, ISI Web of Science, and Proquest. Several categorizations of the search terms were tested to find the best match. Five search terms groups were defined because they cover the literature review goal and composed the scoping study stage:

performance measurement; nonprofit organizations; factors that influence performance measurement; design and implementation of performance measurement systems; and social outcomes.

Search strategy definition

The search strategy encompassed the consideration of journal papers in English published until 2015 and referenced in the following platforms: Science Direct, Taylor & Francis, Scopus, Springer, Wiley, ISI Web of Science, and Proquest. The overall search in these databases resulted in 4,606 papers.

Exclusion criteria application

The exclusion criteria application stage resulted in the removal of duplicates and references without available full-text.

Data collection

For the data collection stage, the paper portfolio with the full text of every reference was organized. Although not included as a search term, articles dealing with public administration also appeared as a research result. Because of their purpose in pursuing social mission instead of maximizing profit and their compliance with other juridical characteristics, such as not sharing any sort of financial profit with investors, donors, contributors or subsidiaries, similar to NPOs, the research team decided to include those papers in the content analysis. Some studies can be cited to support this decision as the study about NPO and public administration by Micheli & Kennerley (2005, p. 126), in which they argue that the adapted frameworks are not enough for those kinds of organization:

In developing performance evaluation tools for these institutions, some attempts have been made to adapt frameworks previously conceived for 'for-profit' sector to public and non-profit organizations without really capturing their peculiarities; on the other hand, while there are many articles about specific indicators, no integrated framework exists that encompasses all the aspects requiring evaluation.

In the book *Performance and Productivity in Public and Nonprofit Organizations*, Berman (2014) indicates some performance challenges for those organizations. For instance, improvement opportunities can be analysed for: “(1) better serving external stakeholders’ needs, (2) improving organizational effectiveness and using resources efficiently, (3) improving project management, and (4) increasing productivity through people” (Berman, 2014, p. 23).

It is worthwhile mentioning that the purpose of this study is not to say that both organizations are identical, but to show in what aspects they are associated in the perspective of the design of PMSs. For more examples of study about performance for public sector and NPO, see Poister, (2003); Sinuany-Stern & Sherman, (2014).

Data analysis

For the data analysis stage, each abstract was read and categorized according to two criteria: the main paper theme should be related to public administration, foundations or private institutions, associations, non-governmental organizations, social enterprises; and the paper should cover performance studies: performance measurement systems, performance indicators/measures, design, implementation, use or review processes. A total of 240 papers were selected and composed the final portfolio of papers. They were classified by type of organization (public administration, foundations or private institutions, associations, non-governmental organizations, social enterprises) and type of study in relation to performance measurement (PMS, performance indicators, PMS design, PMS implementation, PMS use, PMS review).

Reporting

The reporting stage was conducted through quantitative analysis performed by the MC3R® software (FLUXO Business Automation, 2015). All papers that were collected and categorized by the 2 criteria were included in this software.

3.1.2 Bibliometric and keyword analysis

Bibliometric analysis and keyword network analysis were applied to describe current research topics related to the theme.

Figure 6 illustrate the steps developed for these analyses.

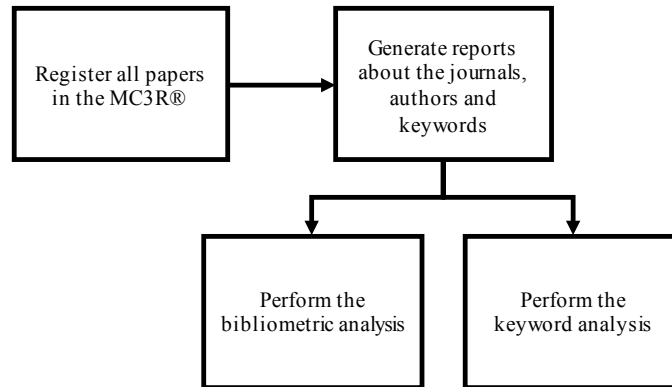


Figure 6: Mapping literature - bibliometric and keyword analysis

As suggested by Lacerda et al. (2012), the bibliometric analysis concept is based on the quantitative evaluation of certain parameters for a defined set of articles, such as their authors, references, citations, and journals. The bibliometric analysis seeks to identify what was produced by the scientific community on a specific research area and to evaluate main trends. In order to achieve them, bibliometric techniques are used to describe current research themes through a quantitative approach.

In a view to executing the bibliometric analysis, MC3R® software (FLUXO Business Automation, 2015) was used to organize all dataset information in reports and matrices. The MC3R® is a platform to support the development of SLR. The 240 papers were registered in the software, including data such as paper title, the publication year, the authors and their countries, keywords, publication journal, cited references, among other data.

After that, all the dataset registered is revised to ensure that the information has been correctly registered. Finally, the software generated reports which enable the characterization of the paper set, including the distribution of paper set and cited references per year, publication journals, journals from references, in addition, the most frequent authors and their countries, the keywords, and the cited references and their authors.

The data registered in MC3R® software are also used to generate a keyword co-occurrence matrix. Then, UCINET® software are utilized to construct a network of keywords and obtain reports. The frequency of keywords associations is calculated to construct maps (strategic

diagrams) that represent the major themes of the field under study, and relationships among them. Additionally, a k-core analysis is performed and represents a set of nodes that have connections to at least K other nodes in the set, and the second one represents the maximum number of nodes which have all possible ties present themselves (Borgatti et al., 2002).

In the last step, all the findings related to the bibliometric and network analyses are consolidated. Therefore, it is possible to propose a meta framework that organizes the main research topics of PMS in NPO which can support future work and a framework to consolidate factors that influence the design and the implementation of PMS in NPOs.

3.2 Content analysis

After mapping the literature, this research intends to study the design process and for that, focus the research on this topic. This section describes the content analysis developed to study the factors that influence the design of PMS in NPO and public administration. For that, the papers set from the SLR that study the designing process were selected, and the factors were identified.

3.2.1 Factors that influence the design of PMS in NPO and public administration

Figure 7 shows the steps for Phase 2 of the research design, i.e., the content analysis. Because of the fact that some collected papers discussed design factors more broadly while others had the objective to study them more deeply, a content analysis was carried out to identify and synthesize the factors. The protocol was conceived through an intensive study to capture all peculiarities about the design factors in the papers. Some articles include the design study, but do not put it as its primary purpose. Therefore, close attention was needed to accurately capture the relevant information. It is worthwhile mentioning that the portfolio was updated with papers until December 2017 to include and cover recent papers in the area, and also, starting at this point of the research, the research team defined the use of the terminologies NPO and public administration separately for the next publications.

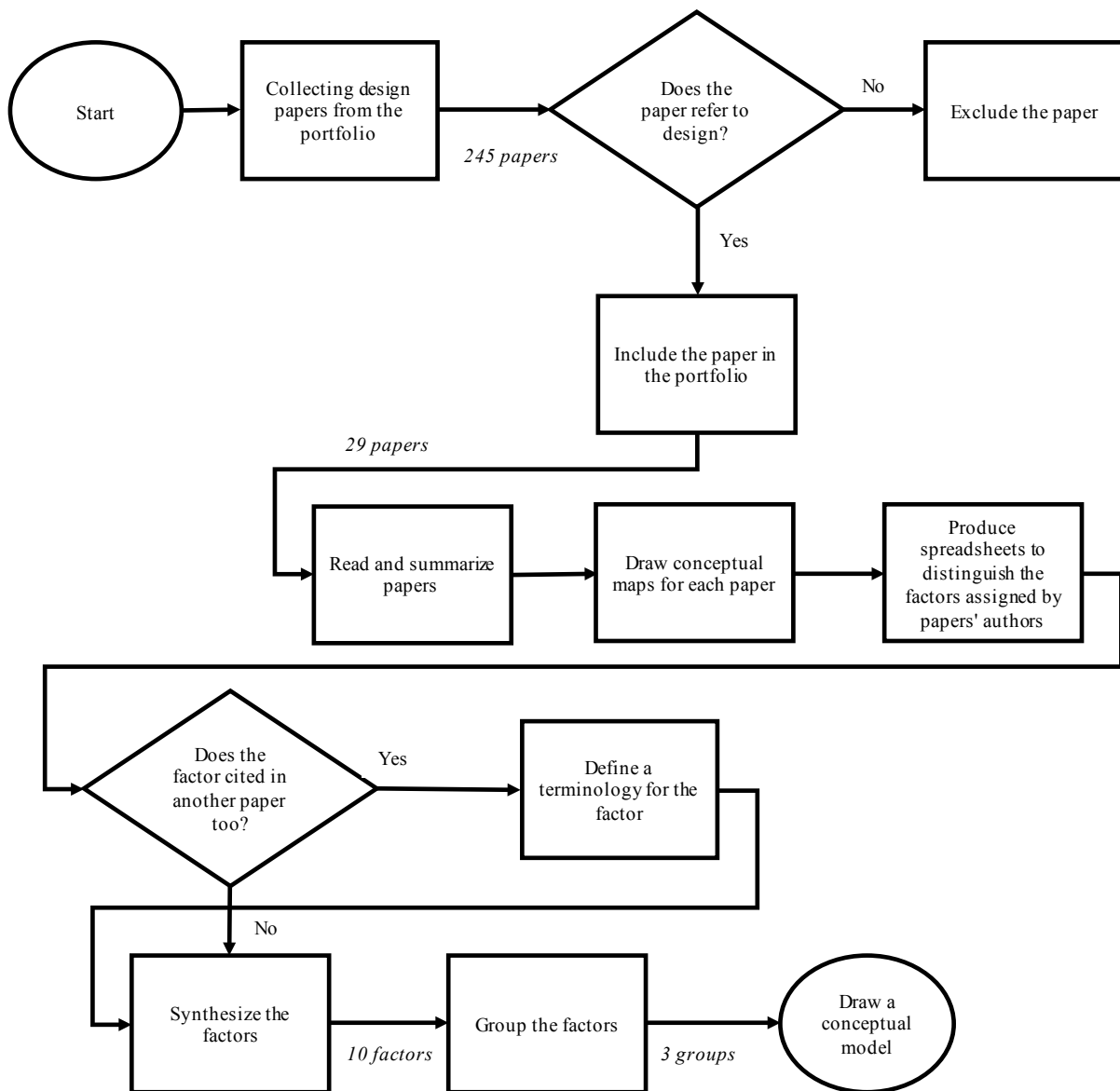


Figure 7: Content analysis

Collecting design papers from the portfolio: the portfolio was previously categorized in Phase 1 and papers were already classified by type of organization (public sector, foundations or private institutions, associations, non-governmental organizations, social enterprises) and by type of study in relation to performance measurement (PMS, performance indicators, PMS design, PMS implementation). From the 245 papers in the portfolio, 29 of them refer to design of PMSs for NPO or public administration and were intensely studied.

Read and summarize papers: all papers were read and summarized with the purpose of identifying both the factors that influence the design of PMSs in NPO and public administration and the key features and concepts described in the paper.

Draw conceptual maps for each paper: conceptual maps were drawn for every paper with information about its purpose, type of organization studied, method applied, main contributions and information about the identified factors. The arrangement of ideas or theories in a concept map makes it easier to understand the ideas and link them to other papers.

Produce spreadsheets to distinguish the factors assigned by papers' authors: the research showed that there is no template in factors definitions. In fact, some words are used to refer to a factor, such as motivations, drivers, barriers or variables. Following the SLR in Phase 1, a spreadsheet was produced with the purpose of synthesizing the factors assigned by each papers' authors.

Define a terminology for the factor: factors were coded in the record sheets. Following the proposal of Keathley (2016, p. 96) to code the factors, the terminology was chosen to be applicable over the studied organizations and “the factors were also coded in neutral terms when possible to remove the positive or negative connotations”. It is worth noting that during the identification phase, factors related to implementation and use of PMSs that needed to be addressed in the design phase were also considered.

Synthesize the factors: for all factors code in the last step, concepts were discussed by the research team to synthesize them and standardize a terminology with its concept through an iterative-inductive approach. A set of 10 unique factor codes were summarized.

Group the factors: all factors were grouped by similarity in aspects related to purpose, stakeholders, and management.

Draw a conceptual model: after synthesizing results, this study presents ten factors that were completely conceptualized. The factors are presented followed by a conceptual model that links them.

3.3.2 Network analysis

The study of the set of 29 papers generated a list of ten factors after extracting, coding and grouping factors from each paper. An adjacency matrix was created where it is possible to identify the factors that are mentioned together in a given paper. This matrix is shown in Table 6, in which the first column has the paper ID, and the first line has the set of factors. Factors

present in a given paper have a '1' in the corresponding column/line, so it is possible to check which design factors appear together in the set of 29 papers from the SLR.

Table 6: Factors identified in each one of the papers that mention design factors

Paper ID	Social approach	Accountability	Legitimacy	Volunteering	Involvement and influence of stakeholders	Financial Sustainability	Short and long-term planning	Fairness	Efficiency and effectiveness	Strategic management control
P1	0	0	1	0	0	0	0	1	1	0
P2	0	0	0	0	0	0	1	0	0	0
P3	1	0	0	0	1	0	0	0	0	0
P4	0	0	0	0	1	0	0	0	0	0
P5	0	0	0	0	1	0	0	1	1	0
P6	0	0	0	0	1	0	0	0	0	0
P7	0	0	1	0	1	0	0	0	0	0
P8	1	0	0	0	0	1	0	0	0	0
P9	0	0	0	1	1	0	0	0	1	0
P10	1	1	0	0	0	1	1	0	0	1
P11	1	0	0	0	1	0	0	0	0	0
P12	0	0	0	0	0	0	0	0	0	1
P13	0	0	0	0	1	0	0	0	0	0
P14	0	0	0	1	0	0	0	0	0	0
P15	0	0	0	0	1	1	1	0	0	0
P16	0	1	1	0	0	0	0	0	1	0
P17	0	1	0	0	0	0	0	0	0	1
P18	0	0	1	0	1	0	0	0	0	0
P19	0	1	1	0	0	0	0	0	0	0
P20	1	1	0	0	0	0	1	0	0	0
P21	1	0	0	0	0	1	0	0	1	0
P22	1	0	0	0	0	0	0	0	0	0
P23	1	0	0	0	0	0	0	0	0	0
P24	0	1	0	0	0	0	0	0	0	1
P25	0	0	0	0	1	0	0	0	0	1
P26	0	0	1	0	0	0	0	0	0	1
P27	0	0	1	0	0	0	0	0	0	1
P28	0	1	0	0	0	0	0	0	0	1
P29	1	1	0	0	1	1	0	1	1	0

Through the adjacency matrix it is possible to perform a network analysis of the factors, where the factors are represented as vertices and each edge represents the number of co-occurrences of a particular pair of factors in the 29 selected papers. For that, Table 7 shows the co-occurrence matrix for the factors. The number of co-occurrences varies from 1 to 4.

Table 7: Co-occurrence matrix for the design factors

Factors	Social approach	Accountability	Legitimacy	Volunteering	Involvement and influence of stakeholders	Financial Sustainability	Short and long-term planning	Fairness	Efficiency and effectiveness	Strategic management control
Social approach	-	3	0	0	3	4	2	1	2	1
Accountability	3	-	2	0	1	2	2	1	2	4
Legitimacy	0	2	-	0	2	0	0	1	2	2
Volunteering	0	0	0	-	1	0	0	0	1	0
Involvement and influence of stakeholders	3	1	2	1	-	2	1	2	3	1
Financial sustainability	4	2	0	0	2	-	2	1	2	1
Short and long-term planning	2	2	0	0	1	2	-	0	0	1
Fairness	1	1	1	0	2	1	0	-	3	0
Efficiency and effectiveness	2	2	2	1	3	2	0	3	-	0
Strategic management control	1	4	2	0	1	1	1	0	0	-

Thus, a factors network is presented for better comprehension of factors correlations, contributing to the understanding of the structural connections among the design factors. In a study about performance measurement in collaborative public management, Kapucu & Demiroz (2011, p. 552) argue that the use of network analysis is growing in research because it “provides tools for a better understanding of communication lines, figuring out who the key central players are, mapping information flow, and identifying possible threats to connectivity”. Carter *et al.* (2015) studied the use of network analysis in leadership research and concluded that the use of network approaches contributes to examining structures and processes in a relational, situated, patterned, formal and informal strategy for the study of theory and practice of organizational leadership considering the challenges for the 21st century.

The factors network constructed for this paper shows degree centrality. The degree centrality measure, formalized by Freeman (1978), indicates the relevance of each vertex/element considering its central location in the network, i.e., it provides information related to the position of the elements in the network. It presents the number of direct contacts that each analyzed element has, revealing how much the element is directly linked to the others. The more connections an element has, the more dominant this element is (Borgatti & Cross, 2003), which means that the factor with more connections has stronger ties with other factors, considering the number of times that they are studied together in the papers.

Scott (1991) presents degree centrality of an element as a measure of local centrality. Degree centrality of an actor ' p_k ' is defined by Equation 1:

$$C_n(p_k) = \sum_{i=1}^n a(p_i, p_k) \quad (1)$$

Where ‘n’ is the element number and $a(p_i, p_k) = 1$ if elements ‘ p_i ’ and ‘ p_k ’ are connected, otherwise $a(p_i, p_k) = 0$. Although, according to Freeman (1978), degree centrality could reflect an elements’ position and role in terms of popularity and activity.

The network analysis structured in this work, as will be seen in Section 5, revealed that for NPO and public administration, the factor with the highest degree centrality is ‘accountability’, followed by ‘involvement and influence of stakeholders’, and ‘social approach’. Thus, it is possible to better understand the factors, how they perform, how they are linked, and how they can influence, motivate or drive the design of PMS in NPO and public administration. The implications of network analysis are discussed in Section 6, which offers some insights for managers, and the practice of PMS, particularly design, in NPO and public administration.

3.3 Case studies

A case study approach was conducted to identify and review what is the role that the design factors play in the PMS of the studied NPOs and public administrations. The case study allows the researcher to study deeply about a subject (Barratt et al., 2011) and this process was important to distinguish or identify key aspects of similarities between the NPOs and public administrations through the lens of PMS.

The case study technique may offer the researcher an opportunity to a better comprehension of multiple issues (I. Stuart *et al.*, 2002). For Barratt et al., (2011), the case study approach provides innovative contributions for the Operations Management (OM) research area. According to the authors, their analyses of more than 200 deductive and inductive case studies show that “the use of qualitative case studies has made some contributions to the OM field in terms of theory building in new areas and also from integrating existing theory with new contexts” (Barratt et al. 2011, p. 339).

The study of Ketokiviva & Choi (2014) explores the case study as a scientific method and explains that the case study can be used as a method to theory generation, theory testing and a theory elaboration. In this way, this research focusses its study in the theory-testing emphasis, which focus on a test of the SLR results about a theory of PMM applying in the context of the

NPO and public administration through empirical results. The analysis is conducted by a hypothetic-deductive analysis derived of a theory. As explained by Ketokiviva & Choi (2014, p. 235):

The difference in comparison with typical large-sample studies is that the context is incorporated in the deduction of hypotheses. [...] In the context of case research, this general logic is augmented (not challenged) by contextual considerations and ultimately tested using data from the empirical context. While the process of deriving propositions from theory is deductive, data analysis and drawing of empirical conclusions can exhibit inductive and abductive characteristics.

Figure 8 shows the steps of the protocol applied to the case studies.

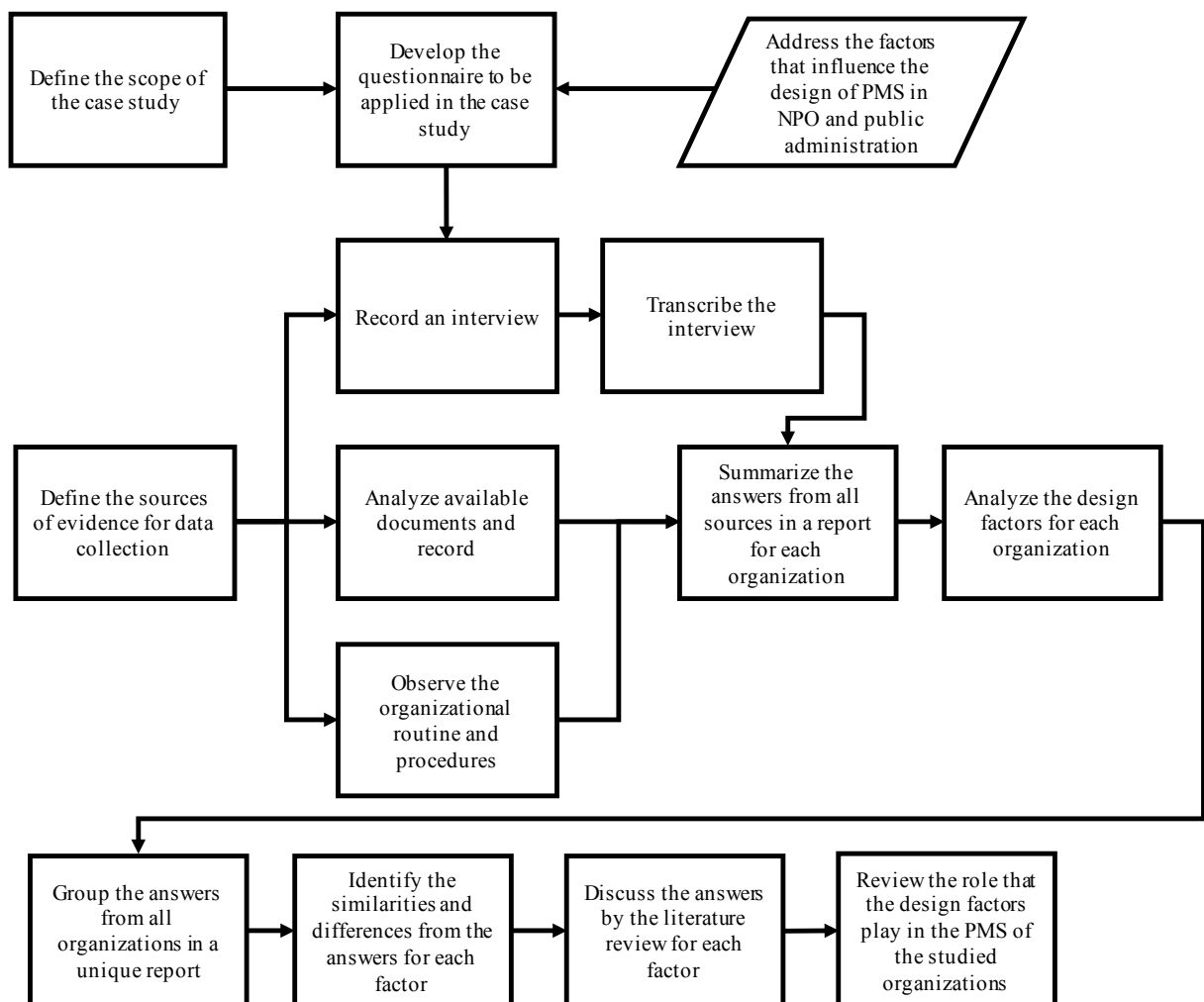


Figure 8: Protocol of the case study

Define the scope the case study. Participating organizations (or a sub-unit within a larger organization) can represent any location, sector, or organizational size, should be nonprofit or public and should have implemented a new/redesigned PMS.

Develop the questionnaire to be applied in the case study and address the factors that influence the design of PMS in NPO and public administration. A questionnaire with 22 questions was developed based on the 10 factors in order to support the understanding about each factor in the context of the organization and, as explained by Ketokivita & Choi (2014, p. 235) “in theory-testing case research, the researcher explicitly contextualizes the general theory before subjecting it to an empirical test”. See Table 8 for the full list of questions to be applied in the case study.

Table 8: Questionnaire

Group	Factor	Questions
Purpose	Social approach	How are the social value and impact evaluated? Are the community interests analyzed and transformed into performance indicators? How? How do you assess if the mission is being accomplished?
Stakeholders	Accountability	Are the data on performance measurement communicated externally? How? Is the information generated in the system/spreadsheets used for accountability to stakeholders? How?
	Legitimacy	Does the data generated and reported through the system contribute to the legitimacy of the organization? Does the use of the system have this purpose?
	Volunteering	Is there access/metric/evaluation developed for volunteers? Which are they?
	Involvement and influence of stakeholders	How can the performance measurement be influenced by the difference of interests and metrics for different stakeholders? Has the system any adaptation in its design to meet some stakeholder requirement?
Management	Financial sustainability	Does the performance measurement system manage the different sources of income?
	Short and long-term planning	How does the system consider goals and outcomes for the short and long-term? Was there any system/spreadsheets/procedures adaptation to meet a short or long-term request by a stakeholder?
	Fairness	Does the organization meet some inter-local equity requirements? If yes, how is this procedure?
	Efficiency and effectiveness	How is the efficiency measured? Are the criteria to measure the results well-established in the performance measurement system? How do you evaluate the effectiveness? Does the performance measurement consider intangible results? If yes, how is this procedure? How to indicate a positive result although the financial result does not show it? What are the difficulties to measure performance and work with these data? Does the performance measurement system allow for monitoring and generating of performance reports?
	Strategic management control	Is the performance measurement system available for use at all levels of the organization? Is the system developed to support learning and continuous improvement in the organization?

Define the sources of evidence for data collection, record an interview, transcribe the interview, analyze available documents and records, and observe the organizational routine and procedures. For each participating organization, an individual interview with personnel who are involved with the performance measurement system, as producing data for performance measures, producing performance reports, and/or reviewing information from performance measures was done and transcribed. Also, the protocol collects evidence from documents, records, and observation to ensure the validity of the data.

Summarize the answers from all sources in a report for each organization and analyze the design factors for each organization. In spite of there is no a dominant design for case studies, Beverland & Lindgreen (2010, p. 61) argue that “may be representative of a maturing of a sub-discipline open to alternate approaches”. So, the analysis is conducted by a deductive way (Barratt, Choi & Li, 2011; Ketokivi & Choi, 2014) and the answers from the interview using the questionnaire were triangulated with the data from other sources, as websites, annual reports, and spreadsheets, when applicable. All answers were summarized by organization to facilitated the analysis and the report of design factors.

Group the answers from all organizations in a unique report and identify the similarities and differences from the answers for each factor. All answers were grouped by each analyzed factor. An analysis of the answers was conducted to identify the similarities and differences in the influence of the factors among the organizations.

Discuss the answers by the literature review for each factor. After summarize all the answers and identify similarities and differences, a discussion based on the literature review is presented.

Review the role that the design factors play in the PMS of the studied organizations. This step answers the research question: What is the role that the design factors play in some applications of PMS in nonprofit and public organizations? The results indicate that the factors play in different ways in the studied organizations suggesting that a factor can influence in different levels the design of the PMS. Also, the protocol points that some factors are present in the routine of the organization but, in some cases, are not being properly studied or considered which disrupts the development of a holistic system.

The definition of how many case studies should be conducted is a controversial issue, however the “multiple cases can augment external validity and help guard against observer bias” (Barratt et al., 2011, p. 331). Six organizations from different countries participate in the case study

developed in 2017. Three NPOs and three public administrations were selected following the criteria:

- Prioritize the social mission;
- Use the performance measurement for making-decision;
- Be classified as public institutions; foundations or private institutions; cooperatives or associations; nongovernmental organizations; or social enterprise;
- At least one NPO and one public administration should work with volunteers;
- Should have implemented a new/redesigned PMS.

As argued by Micheli & Kennerley (2005), the number of frameworks of performance measurement is pretty low in the context of NPO and public administration. Despite the developed methods, few of them was systematically exploited (Arena, Azzone & Bengo, 2015). In this context, this study purpose a review exercise using the designing factors. For that, well-known process for PMS implementation and operationalization is examined by two stages: 1) review by the enterprise engineering guidelines and 2) review by the factors that influence the design of PMS in NPO and public administration as illustrated in Figure 9.

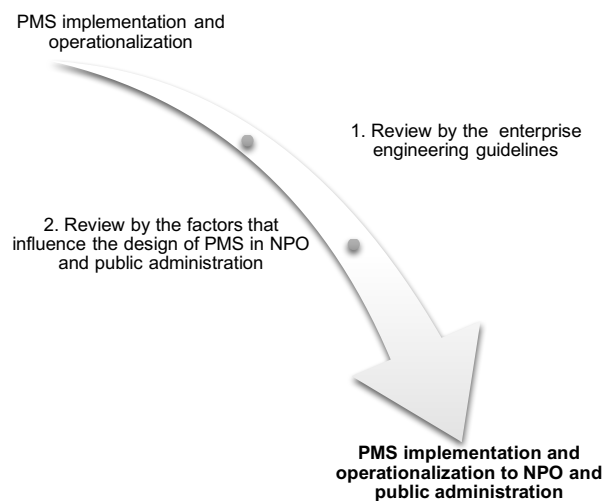


Figure 9: PMS implementation and operationalization review

It is important to elucidate that the first analysis through the enterprise engineering guidelines was chosen as a first step of the review of the PMS implementation and operationalization because its concept is defined as a practice of company design or principle related to the definition, structure, conception and implementation of the company operations as business processes communication networks (Deschamps, 2013).

The process described in the book “Strategy and Performance: Getting the measure of your business” by Neely *et al.* (2002) is assessed through by the enterprise engineering guidelines identified by Deschamps *et al.* (2013). The book is organized as a handbook to facilitate the understanding, implementation and operationalization of a PMS suitable to an organization. Two phases are proposed, as shown in Figure 10.

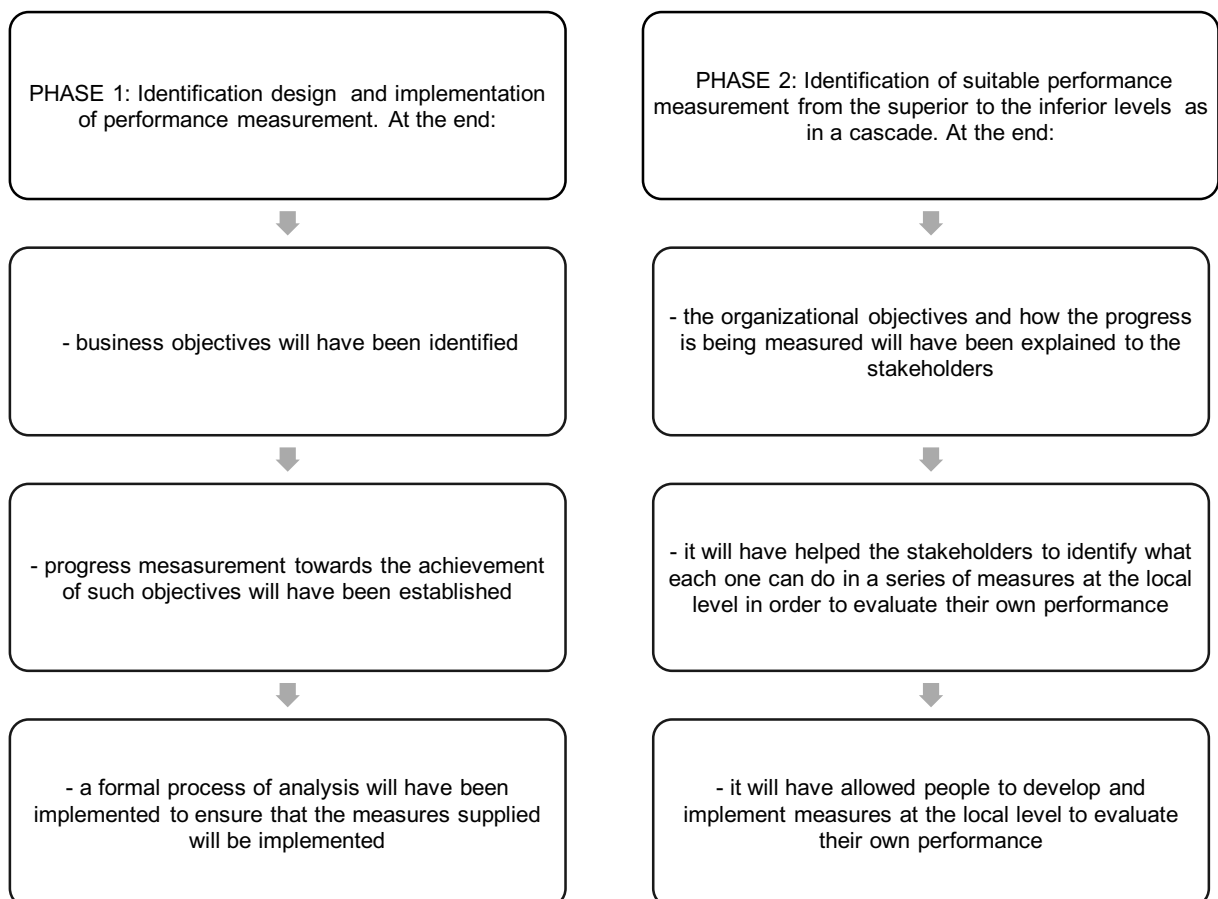


Figure 10: Phases of the PMS implementation and operationalization process proposed by Neely et al. (2002)

In order to fulfill the two phases, the authors propose a 10-part process, in which the first phase comprises the first 5 parts and the second phase the other 5 parts. Each part contains a set of objectives, as listed in Table 9.

Table 9: Phases, parts and objectives of the PMS implementation and operationalization process proposed by Neely et al. (2002)

Phase	Part	Objectives
Phase 1: Identification design and implementation of performance measurement	Part 1: What are the main customer groups?	Objective 1.1: identify the customer-product groups with distinct and competing demands. Objective 1.2: identify the customer-product groups. Objective 1.3: collect the identified customer-product groups data.
	Part 2: What are the organizational objectives?	Objective 2.1: reach a balanced set of organizational objectives for each customer-product group. Objective 2.2: identify the customer needs for each customer-product group, starting with the most important group. Objective 2.3: identify the stakeholders needs for each customer-product group. Objective 2.4: identify organizational objectives. Objective 2.5: verify a balanced set of objectives that has been developed. Objective 2.6: set targets and verify strategies Objective 2.7: evaluate contributions. Objective 2.8: define responsibilities to verify or develop performance measurements for each organizational objective.
	Part 3: Have the organizational objectives been reached?	Objective 3.1: develop performance measurement for each organizational objective and complete a register form with the performance measurements for each organizational objective.
	Part 4: Were the right measures chosen?	Objective 4.1: verify whether everybody agrees with all the high level performance measurements. Objective 4.2: set a process to follow the progress with the implementation of each measurement. Objective 4.3: verify whether there are barriers for implementation.
	Part 5: Using the measures to manage the business	Objective 5.1: set a schedule of future performance reviews. Objective 5.2: set a mechanism to review the performance measurement system. Objective 5.3: conduct performance reviews successfully.
Phase 2: Identification of suitable performance measurement from the superior to the inferior levels as in a cascade	Part 6: What can be done to leverage performance in relation to the objectives?	Objective 6.1: identify performance conductors. Objective 6.2: fill in the "polar fishbone" graph. Objective 6.3: summarize the "polar fishbone" graph.
	Part 7: Which are the most important performance conductors?	Objective 7.1: identify which conductors are fundamental so that suitable performance measurements can be developed. Objective 7.2: identify key-activities. Objective 7.3: evaluate key-activities (main). Objective 7.4: set responsibilities for the performance measurements for each key-activity.
	Part 8: How can one know whether these conductors are working?	Objective 8.1: identify one performance measurement for each key-conductor. Objective 8.2: fill in a register form with each key-activity performance measurement.
	Part 9: Were the right measures chosen for this conductor?	Objective 9.1: verify whether all the organizational team members agree with the measures they will use. Objective 9.2: set a follow-up process for each measure implementation progress. Objective 9.3: verify whether there are barriers to the implementation.
	Part 10: Use these measures to leverage organizational performance	Objective 10.1: set a schedule for future performance reviews. Objective 10.2: set a mechanism to review the performance measurement system. Objective 10.3: conduct performance reviews successfully.

The analysis that was conducted comprised examining the objectives of the PMS implementation and operationalization process to determine whether all of the guidelines were fulfilled. The analysis procedure is portrayed in Figure 11.

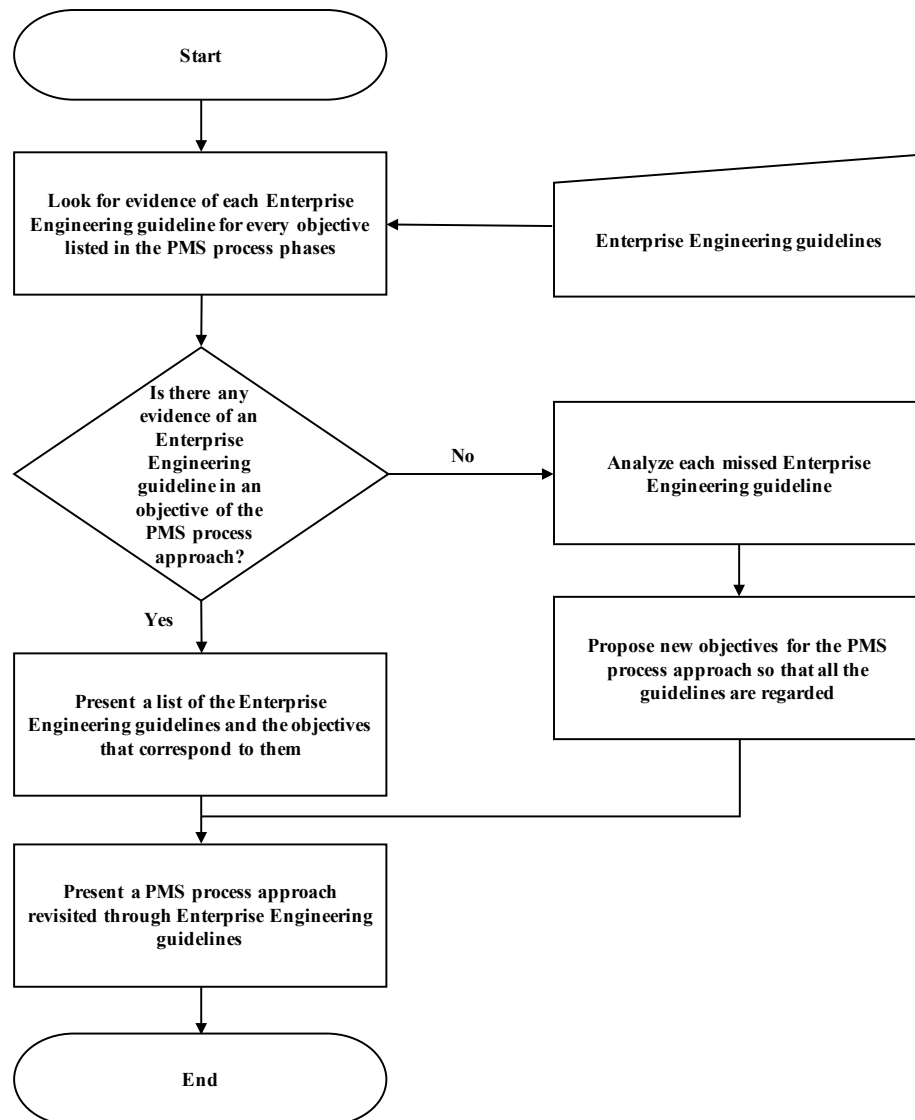


Figure 11: Procedure to assess the PMS implementation and operationalization process through enterprise engineering guidelines

This way, out of the total of 12 enterprise engineering guidelines, it could be concluded that 4 of them are not covered by any objective of the performance measurement process. Next chapter shows the guidelines that were associated with process objectives, and the guidelines that are not covered by any of the objectives. Then, new objectives for the PMS implementation and operationalization process are proposed so that all guidelines are fulfilled.

After this review through the enterprise engineering guidelines, in order to improve the PMS implementation and operationalization with the adequate characterization considering the NPO and public administration, and also, through the factors that influence the design of PMS in these organizations as criteria to obtain a complete system, a review of the PMS implementation and operationalization is performed. Figure 12 presents the procedures.

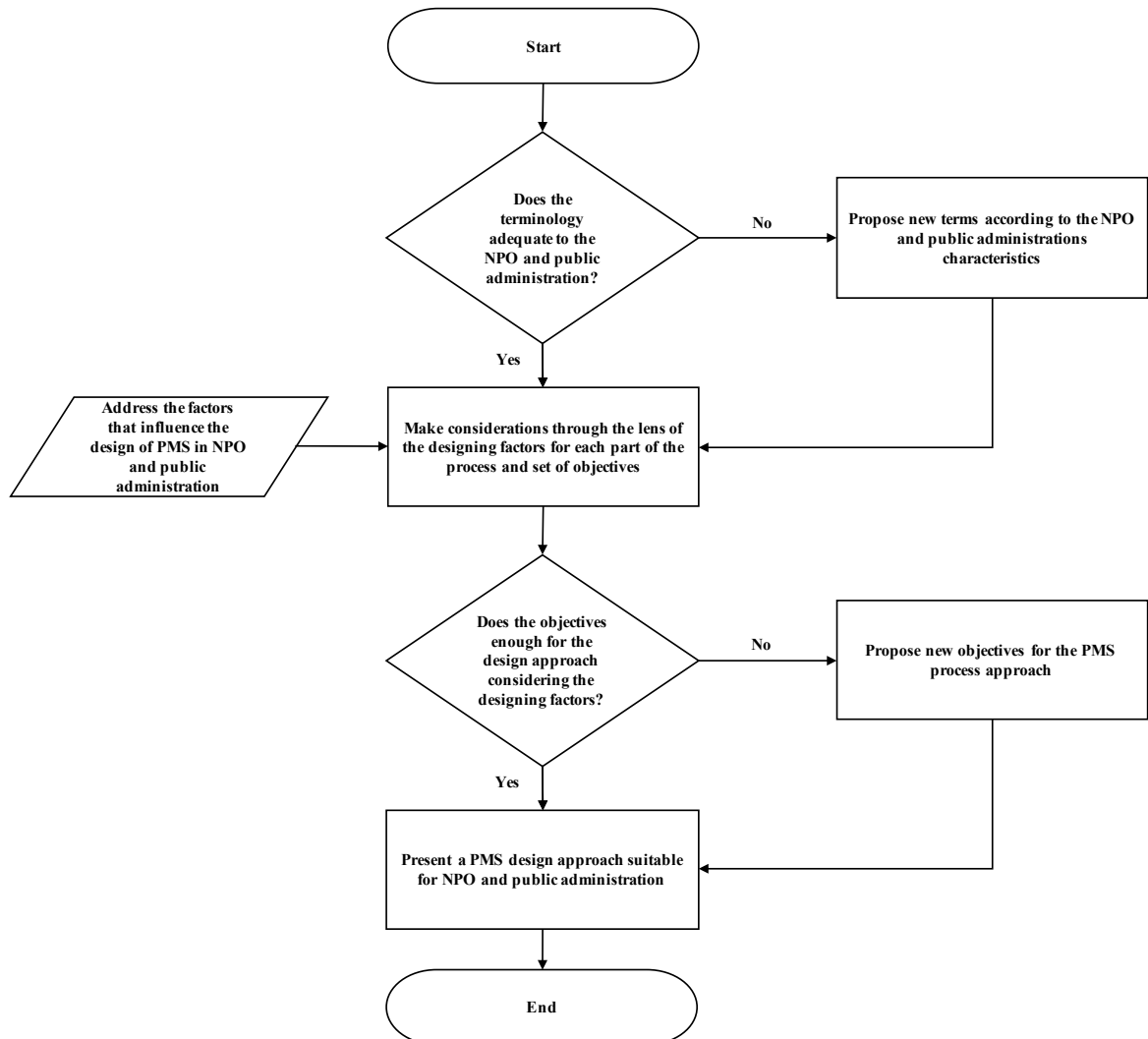


Figure 12: Procedures to assess the PMS process approach through designing factors

After this second stage of review, the PMS implementation and operationalization is adapted and add objectives, change the terms in order to present a process not so business. Lastly, considerations using the perspective of the design factors for all set of objectives are exhibited. The following section presents the main findings and discusses them, and the papers in Appendix A provides complementary data.

4 FINDINGS AND DISCUSSIONS

This chapter presents the findings and discuss the results organized by ‘mapping literature’, ‘content analysis’, ‘case studies’ and ‘PMS implementation and operationalization process’.

4.1 Mapping the literature

The first section presents the results of the bibliometric and keywords network analysis performed with the SLR outputs.

4.1.1 Bibliometric analysis

The results of the bibliometric analysis are the paper set characterization, including distribution of papers and references, authors and their countries, cited authors, publications and journals, keywords analysis and cited references. The first set of analyses examined the distribution of the 240 papers from the portfolio per year of publication.

There is a general increasing interest, since 2001, in the topic of NPOs and PMSs. Afterward, a significant improvement was evident from 2007. Figure 13 shows an overview of the publications since 1985 until 2015. These results provided insight into the extent of academic focus on PMS in NPO.

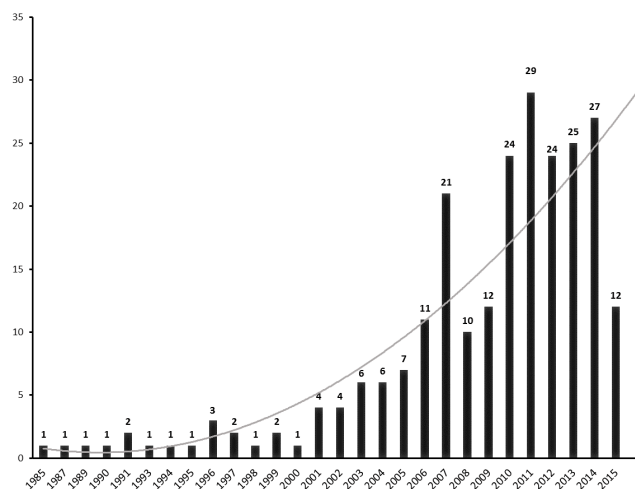


Figure 13: Number of papers per publication year

Additionally, the distribution of the paper set analysis can be complemented with Figure 14, which shows the distribution of references. It is interesting to note a significant increase of references in the period between 2002 and 2004.

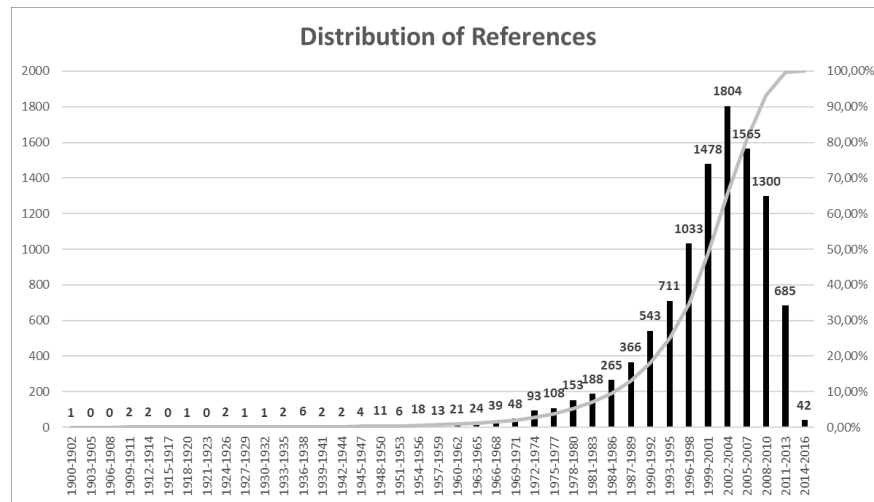


Figure 14: Distribution of references

Furthermore, it is perceived that as the knowledge of this research area is specialized, the cited references become more recent. Thus, the gap between the published articles and the cited references is reduced. Also, the area becomes more professional and begins generating specific knowledge in this field.

Another significant result of the bibliometric analysis was the keyword analysis. Papers in the paper set provided 615 keywords. The present analysis considers only terms that are separately identified in the papers under the label of “*keywords*”. Forty-nine papers do not provide any keywords and, thus, were not included in this analysis.

Of the 615 keywords, there are 501 that appear just once. It means that 81% of the keywords proposed are cited only one time in the paper set. Table 10 presents the keywords which appear at least three times. In this group, there is a meaningful participation of terms usually related to PMSs, such as “*performance measurement*”, “*performance management*”, “*balanced scorecard*”, “*performance*”, “*evaluation*” and “*accountability*”. This fact may suggest that PMSs are on the research agenda of NPOs. Other keywords of this group, for instance, “*social enterprise*” and “*social entrepreneurship*” are used to define what type of NPO is addressed in the paper.

Table 10: Most frequent keywords

#	Keywords	Frequency	#	Keywords	Frequency
1	performance measurement	30	27	SROI	5
2	performance management	22	28	charity	4
3	nonprofit organization	21	29	data envelopment analysis	4
4	balanced scorecard	17	30	efficiency	4
5	social enterprise	15	31	government	4
6	nonprofit	13	32	health service	4
7	performance	13	33	local government	4
8	evaluation	11	34	public administration	4
9	accountability	10	35	public sector	4
10	social entrepreneurship	10	36	change management	3
11	market orientation	9	37	empowerment	3
12	United Kingdom	9	38	England	3
13	third sector	8	39	impact measurement	3
14	non-governmental organization	7	40	management	3
15	performance measure	7	41	measurement	3
16	leadership	6	42	new public management	3
17	organizational effectiveness	6	43	New Zealand	3
18	organizational performance	6	44	nonprofit accountability	3
19	outcome measurement	6	45	policy	3
20	public sector organizations	6	46	public sector reform	3
21	case study	5	47	quality	3
22	child welfare	5	48	strategic management	3
23	human service	5	49	The Netherlands	3
24	outcomes	5	50	transformational leadership	3
25	social impact	5	51	trust	3
26	social value	5			

The terms “*balanced scorecard*”, “*evaluation*” and “*accountability*” are among the top 10 cited keywords indicating that they are closely related to research associated with performance measurement in NPOs. The term “*accountability*”, for example, show the concern about stakeholders’ requirements as legal obligations to provide financial and management reports. Accountability can contribute to reach new investments and donors, in addition to providing information and legitimacy for funding and regulatory agencies.

The term “*SROI (Social Return on Investment)*” appears as a new term and it indicates a performance measurement tool adapted for NPOs to demonstrate the social and economic impact that they generate.

The results obtained as “*accountability*”, “*leadership*”, “*social impact*”, “*efficiency*”, and “*quality*” represent important findings and they indicate significant factors that influence Performance Measurement. Some countries appear, “*United Kingdom*”, “*England*”, and “*New Zealand*” as countries that have a significant number of studies about NPOs and performance measurement systems. Additionally, “*case study*” and “*data envelopment analysis*” can be

impact. Moreover, SROI is a framework for understanding and measuring the social, economic and environmental value of an organization's activities with a focus on outcomes, different from other tools in placing a monetary value on the outcomes and benefits.

Furthermore, the keywords can be analyzed through time. In the papers from 1985 to 2003, the term "*performance measurement*" was the keyword that most appeared. Since 2007 to 2015, at least a paper per period has used "*balanced scorecard*" as a keyword. It is confirmed by Somers' (2005) suggestion that balanced scorecard can be adapted to social enterprise. Moreover, she details a Social Enterprise Balanced Scorecard (SEBS) and reported that by using this model, organizations become a better business and can demonstrate social value added to stakeholders.

Table 11 shows only the most frequent keywords by each period. It can be observed that "*performance measurement*", "*nonprofit organization*" and "*social enterprise*" are the most frequent keywords in the period of 2007 until 2015.

Table 11: Most frequent keywords by period

2015-2013		2012-2010		2009-2007	
performance measurement	14	nonprofit organization	12	balanced scorecard	5
social enterprise	8	performance measurement	11	nonprofit organization	5
performance management	7	performance management	9	performance	5
third sector	7	balanced scorecard	7	performance management	4
nonprofit	6	accountability	6	2006-2004	
performance	6	nonprofit	5	United Kingdom	3
Evaluation	5	social enterprise	5	2003-1985	
social entrepreneurship	5	social entrepreneurship	5	performance measurement	3

Another type of analysis examined the authors and their countries. A total of 523 authors are present in the paper set and 33 of them authored 2 or more papers. So, 490 authors, representing 94% of the total, authored only one paper. This result shows that there is no single prominent representative author for the research area.

The two countries with more authors in the paper set are the USA with 151 authors followed by the United Kingdom (UK) with 98 authors, which represents 48% of the total authors by country. The next countries in number of authors are Australia and Italy, with 24 (5%) and 23 (4%) authors, respectively. Of the 33 authors with two or more papers, nine are from the United Kingdom and eight are from the United States of America (USA), encompassing 51% of authors with two or more papers.

The 6 top authors of the paper set (authors with 3 or more papers published) are presented in Table 12, including their country, institutional affiliation and research interests available in their universities' website and information about papers in the paper set. Also, the h-index is available for each author that is in the Scopus classification, which considers the number of papers and citations of the author.

Table 12: Information for the top six authors in the paper set

#	Author	# of Papers	Country	Affiliation	Period	Main themes	Research interests	h index
1	R. Andrews	6	United Kingdom	Cardiff University - Professor of Public Management: Cardiff Business School	2006 - 2011	Public sector; Performance	Strategic management, social capital and public service performance	17
2	R. M. Walker	4	China	City University of Hong Kong - Chair Professor of Public Management: Department of Public Policy	2006 - 2011	Public sector; Performance	Public management and performance; Management reform in Asia; Environmental methods; Sustainable development	28
3	G. A. Boyne	4	United Kingdom	Cardiff University - Pro Vice-Chancellor, College of Arts, Humanities and Social Sciences and Professor of Public Sector Management	2006 - 2011	Public sector; Performance	Explanation and evaluation of organizational performance in the public sector	43
4	B. McBeath	3	USA	Portland State University - Professor, Graduate School of Social Work	2006-2014	Child welfare; Organizational performance	Community-based practice; Organizational and management practice; Policy analysis; Human service model development	10
5	C. Moxham	3	United Kingdom	University of Liverpool - Senior Lecturer in Operations Management, Management School	2007-2014	Voluntary sector, Nonprofit organizations, Performance measurement;	Social sustainability; voluntary sector public service provision; measuring voluntary sector performance; socially sustainable supply chain management	5
6	M. Bull	3	United Kingdom	Manchester Metropolitan University – Senior Lecturer in Faculty of Business and Law	2006-2013	Social enterprise	Social enterprise: the challenges in the business model and balancing social and enterprise; the management practices of social enterprises; capturing and reporting social value in small social businesses	32

Of these 6 top authors, 4 of them are affiliated to universities from the United Kingdom. The 3 top authors, R. Andrews (United Kingdom), R.M. Walker (China) and G.A. Boyne (United Kingdom) have jointly authored papers together. Of the 4 papers from R. M. Walker and G.A. Boyne, 3 of them are authored with R. Andrews.

Further analysis was conducted on cited authors. Papers in the paper set presented over 13,000 authors in the cited references. Eighty-five of them were referenced more than ten times, and G.A. Boyne was the most cited author with 44 citations. Table 13 presents authors with 20 or more citations in the paper set.

Table 13: Ranking of authors in the paper set with 20 or more citations

#	Author	Frequency of citations by author	#	Author	Frequency of citations by author
1	G. A. Boyne	44	8	Organisation for Economic Co-operation and Development (OECD)	24
2	L. Salamon	37	9	D. P. Norton	22
3	R. M. Walker	35	10	Department of Health (UK)	21
4	R. S. Kaplan	34	11	The Audit Commission (UK)	21
5	A. Neely	25	12	J. Guthrie	20
6	K. J. Meier	25	13	H. P. Hatry	20
7	H. K. Anheier	24	14	L. J. O'Toole	20

G.A. Boyne's papers have a focus in public administration and were published between 1996 and 2011. The next four authors deal with different contexts. L. Salamon's papers address NPOs in general, public sector, third sector and social welfare organizations. R.M. Walker performs research on social welfare organizations, voluntary sector, and public administration. R.S. Kaplan focuses on the Balanced Scorecard for any organization and the public sector. A. Neely's papers deal with performance measurement and management in general.

The next analysis considers journal publications. Firstly, it is important to note that of the total of 136 publication journals of the papers in the set, "*Voluntas: International Journal of Voluntary and Nonprofit Organizations*" and "*Administration in Social Work*" are the most frequent ones with 15 and 12 papers respectively. Table 14 shows the top ten journals with five or more papers published including data on journal classification by SCImago Journal Rank that classifies journals in quartiles (Q1, Q2, Q3, and Q4) according to categories such as "*public*

administration”, “*social work*”, “*management information systems*”, “*strategy and management*”, “*health policy*” and “*earth-surface process*”.

Moreover, Table 14 presents five journals in the first quartile (Q1) of the Scimago Journal Rank and one that is not classified (n/a). These ten journals represent 32% of the total journals in the paper set. Curiously, eight of them are journals with a public administration or nonprofit subject as the focus of the journal. There is just one, “International Journal of Productivity and Performance Management”, which is a journal that publishes papers related to performance management and measurement.

Table 14: Top ten journals from the papers in the paper set

#	Publication Journal	Quantity of papers published	SCImago	#	Publication Journal	Quantity of papers published	SCImago
1	Voluntas: International Journal of Voluntary and Nonprofit Organizations	15	Q2	6	Social Enterprise Journal	6	n/a
2	Administration in Social Work	12	Q3	7	Children and Youth Services Review	5	Q1
3	International Journal of Productivity and Performance Management	9	Q1	8	International Journal of Health Care Quality Assurance	5	Q3
4	Public Management Review	8	Q1	9	International Journal of Public Sector Management	5	Q2
5	Nonprofit and Voluntary Sector Quarterly	7	Q1	10	Public Administration Review	5	Q1

The results obtained from the publication journals for the papers in the paper set analysis can be compared with the most frequent journals in the cited references. The most frequent journal appearing in the references of the paper set is “*Nonprofit and Voluntary Sector Quarterly*” with 166 appearances, which was the fifth most frequent journal in Table 14 presented before.

Furthermore, Table 15 shows the top ten journals from cited references with 87 or more appearances, including data about journal classification by the Scimago Journal Rank, that classifies journals in quartiles (Q1, Q2, Q3, and Q4) according to the categories “*public administration*”, “*social work*”, “*information systems and management*”, “*strategy and management*”, “*social sciences*” and “*business, management and accounting*”.

Table 15: Journals from references with major frequency

#	Publication Journal	Quantity of references published	SCImago	#	Publication Journal	Quantity of references published	SCImago
1	Nonprofit and Voluntary Sector Quarterly	166	Q1	6	Administration in Social Work	89	Q3
2	Accounting, Organizations and Society	129	Q1	7	Administrative Science Quarterly	92	Q1
3	Public Administration Review	128	Q1	8	Journal of Public Administration Research and Theory	85	Q1
4	Nonprofit Management & Leadership	133	Q2	9	Strategic Management Journal	84	Q1
5	Academy of Management Journal	109	Q1	10	Academy of Management Review	82	Q1

Of the ten most frequent journals for the cited references, 5 of them have a focus in public administration or NPOs, and 8 of them have high-level classification (Q1) by Scimago.

Finally, there are 10,540 cited references in the paper set. 9,136 of them, which represents almost 87%, are cited just once. Table 16 shows the ten most cited references. The focus of the ten most cited papers seems to be “*performance measurement*”. Indeed, citations are mostly focused on two themes: “*performance measurement systems*” and “*management of nonprofit organization*”.

Some classic references on performance measurement, such as those from Kaplan & Norton (1992; 1996) are the most cited in the paper set. These references are also some of the most popular when considering purely the field of performance measurement (Neely, 2005). It is noteworthy that, although the topics of performance measurement and NPOs are addressed, this paper is not a result of the search, since it did not have keywords that addressed factors that influence the design and the implementation of PMSs. Therefore, the knowledge of PMSs for for-profit organizations seems to be used as a foundation for research on PMSs for NPOs. Indeed, as observed by Arena et al. (2015), this confirms what had already been pointed out: the simple adaptation of for-profit PMSs approaches to NPOs appears not to be sufficient to address the particular characteristics of NPOs.

Table 16: Most frequently cited references

#	References	Authors	Year	Citations
1	The balanced scorecard - Measures that drive performance <i>Harvard Business Review</i> , 70, 1, 71-79	Kaplan, R. S.; Norton, D. P.	1992	28
2	The Balanced Scorecard – Translating Strategy into Action <i>Harvard Business School Press</i>	Kaplan, R. S.; Norton, D. P.	1996	25
3	Strategic Performance Measurement and Management in Nonprofit Organizations <i>Nonprofit Management & Leadership</i> , 11(3):353-370	Kaplan, R. S.	2001	24
4	Measuring the unmeasurable: Empirical studies of non-profit organization effectiveness <i>Nonprofit and Voluntary Sector Quarterly</i> , 27, 183-202	Forbes, D. P.	1998	19
5	The iron cage revisited: Institutional isomorphism and collective rationality in organization fields <i>The University of Chicago Press</i> , 63-82	DiMaggio, P.; Powell, W.	1991	18
6	Managing and Measuring Social Enterprises <i>Sage Publications</i>	Paton, R.	2003	17
7	Multiple Constituencies and the Social Construction of Nonprofit Organization Effectiveness <i>Nonprofit and Voluntary Sector Quarterly</i> , 26(2): 185-206	Herman, R. D.; Renz, D. O.	1997	15
8	The Economics of Performance Management in Nonprofit Organizations <i>Nonprofit Management & Leadership</i> , v.13, n.3 p.267-281	Speckbacher, G.	2003	15
9	Using the Balanced Scorecard as a Strategic Management System <i>Harvard Business Review</i> , 74 (1), 75-85	Kaplan, R. S.; Norton, D. P.	1996	15
10	Case Study Research: Design and Methods (2nd ed.) <i>Sage Publications</i>	Yin, R. K.	1994	15

Two of the references in Table 16 discuss the difficulty of measurement effectiveness in a NPO, Forbes (1998) and Herman & Renz (1997). The former reviewed empirical studies of nonprofit effectiveness from 1977 to 1997, while the latter investigated stakeholder judgments of nonprofit charitable organization effectiveness. According to Forbes (1998), there are several concepts of effectiveness in NPOs used by researchers.

Three of the references in Table 16 address performance measurement in a NPO (Kaplan, 2001b; Paton, 2003; Speckbacher, 2003). These works propose options for adapting the balanced scorecard to a NPO and also suggest that for-profit themes of performance management may apply to NPOs. Another key point concerning the references is the theoretical background that is employed. For this purpose, the sixty most cited references were analyzed and divided into three main groups: (i) references that present general themes, (ii) references that present specific themes that apply to NPOs, and (iii) references that utilize both general and specific themes.

92% of the references examined mention general themes, 68% highlight specific themes that apply to NPOs, and 62% consider both of them. Then, Table 17 presents an analysis of the main

themes identified. The most common background of general themes is “*balanced scorecard*”, “*performance measurement*” and “*accountability*”, which are the same themes that emerged in previous analyses. Also, “*institutional theory*”, “*theory of organization*”, and “*stakeholders*” were also cited in the building of the knowledge in this field.

Lynch-Cerullo and Cooney (2011) examined the field-level pressures facing humanitarian service organizations (HSO) and review the research on performance measurement among nonprofit HSOs on responses to these pressures and proposed a conceptual framework combining institutional theory and resource dependency theory. Additionally, the factors that encouraged performance measurement in NPOs were examined.

According to Herman & Renz (1999), many ideas first introduced and popularized in business are later adopted by NPO, such as strategic planning, total quality management, and others. In fact, the belief is that what works in business should also work in NPOs or what is regarded as best practices is a sign of effective management and could legitimize a NPO from a stakeholder’s perspective. Therefore, the study was based on general and specific literature on organizational effectiveness to present theses about NPO effectiveness. On the other hand, it can be seen from Table 17 that the number of specific themes is significant.

Table 17: General and specific themes from most frequently cited references

General Themes	Accountability, Balanced Scorecard, Economic theory of the firm, Funding, Institutional theory, Legitimacy, Management control theory, Management Practices, Management system, Market orientation, Neo-institutional theory, Organization Effectiveness, Organization theories, Organizational change, Organizational Effectiveness, Organizational Learning, Organizational performance, Organizational strategy, Outcome Measurement, Performance, Performance management, Performance measurement, Performance measurement systems, Performance Measures, Reporting, Resources, Stakeholders, Strategy, Theory of organization
Specific Themes	Categorization of nonprofit organizations, Charitable organizations, Environmental and social impacts, Human service organizations, Government sector, Multidimensional and integrated model of nonprofit organizational effectiveness (MIMNOE), Nongovernmental organizations (NGOs), Nonprofit organization (NPO) accountability, Nonprofit organizational effectiveness, Nonprofit organizations, Nonprofit sector, Public sector, Social audit, Social change, Social constructionism, Social enterprise, Social entrepreneurship, Social mission, Social performance, Social value, Social return on investment (SROI), Social sector, Third sector, Voluntary sector

An outstanding example of this is the Multidimensional and Integrated Model of Nonprofit Organizational Effectiveness (MIMNOE) proposed by Sowa et al. (2004), which builds upon debates in organizational theory and nonprofit management research and suggests a multidimensional model to capture nonprofit organizational effectiveness.

Discussion

The bibliometric and network analysis highlighted the main characteristics of performance measurement systems in NPOs research. In this section, findings from works of the literature will be discussed. Figure 16 shows a meta-framework that organizes the main research topics of PMSs in NPOs. There are three main focus areas to be highlighted.

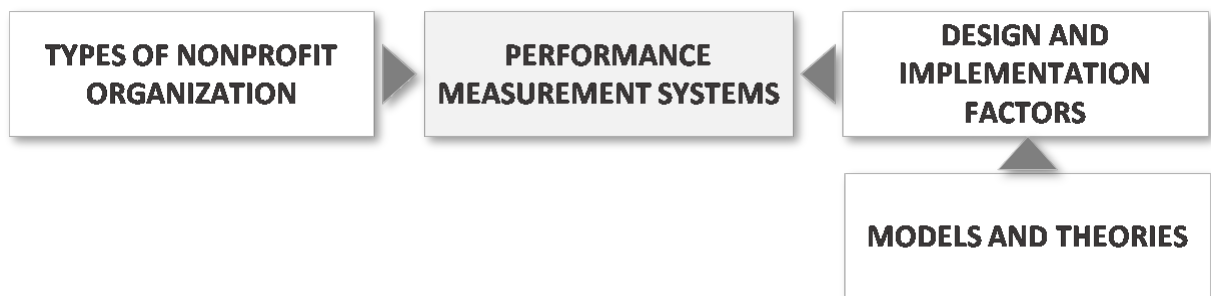


Figure 16: Main focus areas

The first one is related to the diversity of NPOs, of different types and with different concerns regarding performance. Although all NPOs seek the achievement of their social goals, each one has specific characteristics that directly influence the design and implementation of performance measurement systems, according to their strategic and operational context.

The second one is the significant amount of works found in the systematic literature review that are related to performance measurement in NPOs and that make use of the general body of knowledge in performance measurement. This knowledge is reflected through theories and models that are either adapted or are used to build more specific models and theories to the context of NPOs.

Finally, such theories and models are the building blocks for the factors that influence different aspects of performance measurement systems. Factors are an applied reflection of models and theories, making tangible the performance measurement needs of NPOs and directly impacting the design and implementation of performance measurement systems. These focus areas are detailed next.

Types of NPOs

In the literature, a significant variety of terms reflects the different typologies of NPOs and appears as prevalent topics, like “public organization”, “third sector organization”, “non-governmental organization”, “civil society organization”, “social enterprise”, “social entrepreneurship”, “voluntary organization”, among others. These organizations have the social objective as a common goal, although they have specific aims and it reflects the difficulty to have measures that capture value across so many different organizations. Then, as mentioned by Moxham (2009), there is not an agreement about the terminology to “nonprofit organizations” what indicates that a charity institution is a kind of nonprofit but not all organization have to be a charity organization. In this context, the sector is diversified including religious institutions, hospitals, museums, voluntary agencies, trade unions, universities, civil right groups, cooperatives, and third sector. Public administration appears in the literature review, as according to some author it shares some characteristics with NPOs as they play complementary and supplementary roles (Karwan and Markland, 2006; Valentinov, 2011).

There is not a consensus about the NPO terminology and which kind of organization can be included as one. Some works, discuss NPO separated of the public sector or social enterprise (Duque-Zuluaga & Schneider 2008; Karwan & Markland 2006). Also, as observed by Moxham (2009) some papers present the PMS discussion as advanced for public administration but not for NPO practice, as they consider relevant aspects that characterize an NPO and make them distinct from public sector.

For economic theories and models stand point, (Moxham, 2009; Valentinov, 2011) take an NPO as having financial restriction about the profit sharing for investors or controllers. Also, this kind of organization depends on of financing and donations. In this context, the requirements for these organizations may hinder the organizational success. Because of this, as noted by Kong (2010a), some NPO are pursuing partnerships with private business and alternative sources of income. So, the innovation has been a strategy for social value creation.

The social enterprises or social entrepreneurship appear in this scenario as an alternative for the NPO activities. This kind of organization has the social mission, but there are not the restrictions on the use of business approaches for trade in products or services. Also, this kind of organization is more flexible than the traditional NPO because it can be self-funded (Kong, 2010a). So, it is necessary to know what are the characteristics of an NPO, nomenclatures, and

types of organization, and also which are the specificities of each typology of an NPO and how it can be reflected in the design of PMS.

Models and Theories

Bibliometric, network and content analysis revealed that several performance measurement theories and models are used to construct knowledge in this field. Theories such as “*economic theory*”, “*institutional theory*”, “*organization theory*”, “*stakeholder theory*”, “*balanced scorecard*”, amongst others, are frequently used and cited to support research in this area.

Steinberg (2003) evaluated economic theories of the nonprofit sector to describe the sector, formulate governmental policy towards the sector and manage NPOs. Then, the study presented theories’ capacity to enlighten the understanding of inquiry, size, and scope of the sector, and the behavioral responses of donors, volunteers, paid staff, and NPOs to changes in their external environment. According to Hansmann (1987), the economic theories of NPO appearing in the literature can be explained in two categories: theories of the role of nonprofit institutions and theories of their behavior.

According to Brignall & Modell's (2000) studies in the public sector, the institutional theory has implications for the effective implementation of multidimensional performance measurement and management. Additionally, a proper definition suggested by institutional theory is that performance should be described as institutionally defined, as institutional factors determine the interests pursued by these organizations. Then, institutional theories indicate that a primary determinant of organizational structure is the pressure exercised by external and internal constituencies on the organization to comply to a set of expectations in order to gain legitimacy and so secure access to vital resources and long-term survival. This fact emphasizes the relevance to consider the organization dependence on multiples stakeholders.

Herman & Renz (1999) studies draw from general and specific literature on organizational effectiveness to present propositions about NPO effectiveness. They suggested that concerns about NPO accountability, outcomes assessment, and performance evaluation confirm the relevance of the discussions about NPOs effectiveness. Primarily, the definition of organization effectiveness focuses on the extent that an organization reaches its goals.

Additionally, research on organizational theory has enabled the development of numerous models exploring organizational effectiveness. Since the increasing pressure on NPO to

demonstrate their impact on social issues for multiple stakeholders, questions of organizational effectiveness have become gradually more important in this research area. However, studies suggested that the characteristics of these organizations, such as their particular financial and legal status and their goals based on social values, are making the analysis of organizational effectiveness even more complex. For Sowa et al. (2004), bearing in mind the organizational diversity, it is important that these differences should lead to the appropriate criteria for assessing effectiveness.

As mentioned by LeRoux & Wright (2010), NPO should use accountability systems to approach outcome measurement and transparency. This practice is generally established through reporting, auditing, and monitoring activities that provide accountability to stakeholders and certify that resources are applied for the specified purposes.

As others studies have highlighted, Morley et al. (2011) report that NPOs are being pressed to measure and report their outcomes frequently to stakeholders. In their research, outcome measurement definition involves identification of outcomes, development of indicators and data collection procedures, data analysis and regular reports. It is interesting to note that NPOs are often familiar with monitoring basic information, which does not help to measure how they are achieving their social mission, helping target their public and the extent of their social impact.

The identification of these theories in previous studies confirmed that research in this area builds upon general performance measurement research. Furthermore, as observed by Luke et al. (2013) it is essential to note that the “*balanced scorecard*” is the most cited model in the references and its importance is also concerned with the purpose of ensuring assessment of organizational performance outcomes and impact, besides legitimacy of communication.

The balanced scorecard is a classical example of an adapted model from the general performance measurement field to NPOs. Although the balanced scorecard is a strategic performance measurement and management tool designed for commercial companies, several studies apply it in NPOs (Kaplan & Norton, 1996). Also, the performance prism model is another example of performance measurement tool used in the for-profit sector that has been adapted to NPOs (Arena et al., 2015; Lee & Moon, 2008; Meadows & Pike, 2010; Mouchamps, 2014; Moxham, 2009).

Niven (2015) analyzes applications of the balanced scorecard in public and nonprofit sectors and argues that it requires a system that not only measures inputs and outputs but is also able to provide a link for evaluating progress in reaching the organization’s mission. Additionally,

his research proposed a balanced scorecard model that applies to public and NPOs, in which mission objectives are raised to the top of the framework.

Similarly, Somers (2005) suggests that the balanced scorecard needs to be adapted to the social enterprise by including social goals, expanding the financial perspective to emphasize sustainability and the customer perspective being widened to capture multiple stakeholders perspectives. Her research presents that by using the Social Enterprise Balanced Scorecard (SEBS), organizations have positive outcomes and become a better business. Also, social enterprises that use this model can demonstrate social value added to stakeholders.

Moreover, there is an accounting terminology being disseminated to more efficiently evaluate and measure blended value creation in the third sector. Consequently, concepts such as SROI (Social Return on Investment), social accounting and audit, Social Return Ratio (SRR) were developed and reflect specific theories in this research area (Moxham, 2009; Luke, Barraket & Eversole, 2013).

Banke-Thomas et al., (2015) consider SROI as a model that has the capacity to measure social and economic outcomes and analyzes views of different stakeholders in a monetary ratio through comparison between net benefits to the investment required. In other words, Wilson and Bull (2013) complement saying that SROI is a framework for understanding and measuring the social, economic and environmental value of an organization's activities. Another example is the Social Accounting and Audit, as mentioned by Luke et al. (2013), which is an externally audited report of social value creation.

However, to many nonprofit managers, performance management systems adapted from the private sector are seen with skepticism (Moxham, 2009; Straub, Koopman & Mossel, 2010). In this context, Moxham (2009) investigates the applicability of the existing body of knowledge about performance measurement in private and public sector nonprofit organizations.

It is noteworthy that the research about performance measurement systems in NPOs is gradually becoming specialized and has started to build upon prior research in the area. From this perspective, there are some examples of specific models and theories about performance measurement systems in NPOs. An example of a specific model for a NPO is the Multidimensional and Integrated Model of Nonprofit Organizational Effectiveness (MIMNOE) proposed by Sowa et al. (2004) and previously presented. This framework builds upon discussions in organizational theory and nonprofit management research and suggests a multidimensional model to capture nonprofit organizational effectiveness.

Factors that influence the design and implementation of PMSs in NPOs

The main factors that influence the design and implementation of PMS for NPO need to be identified. For Micheli & Kennerley (2005) the number of frameworks is small yet so that investigations will be necessary for research area. Some tools and methods have being developed, but as observed by Arena et al. (2015), the systematic analysis is not enough. The PMS evolution was not capable of knowing all various dimensions/factors about the performance in NPO. Understanding them will contribute to translate the social issues in measurable terms.

In this sense, Figure 17 depicts a framework that consolidates the main factors that influence the design and implementation of performance measurement systems identified in the systematic literature review performed in this work. Design factors were grouped in three main categories: social factors, stakeholder-related factors and managerial factors. Regarding implementation factors, as the literature is still in evolution, only three factors, uncategorized were identified.

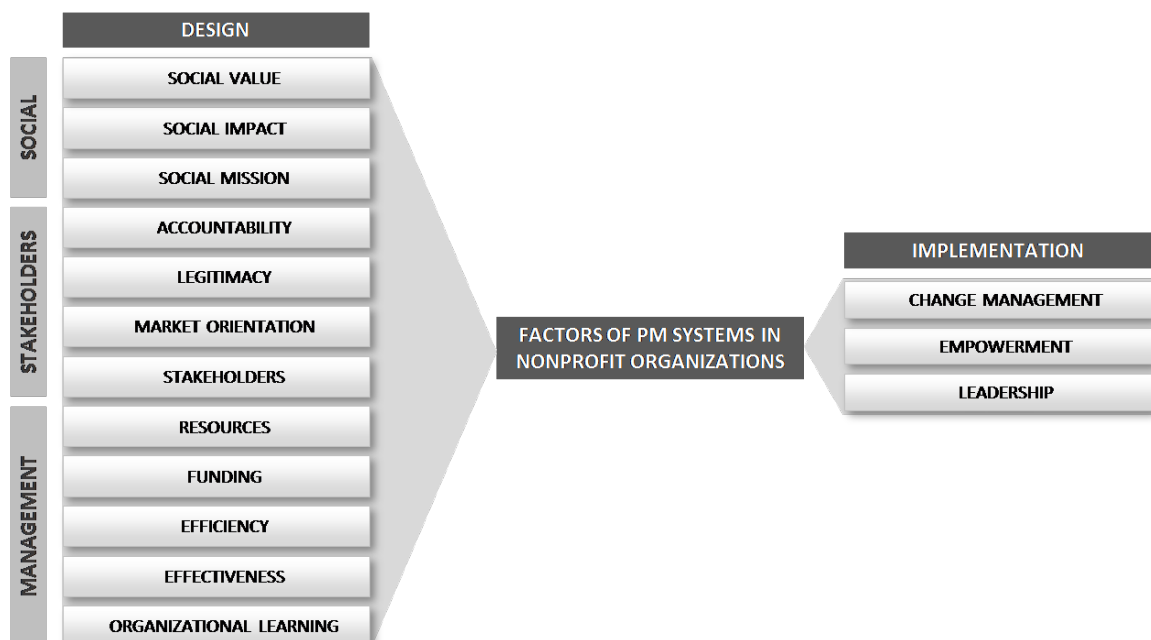


Figure 17: Framework for the factors that influence design and implementation of performance measurement

Factors in the social category represent the concern of NPOs in achieving their social objectives and purposes. In this context, the measurement of performance in NPO is dependent on their aims, mission, and goals (Luke, Barraket & Eversole, 2013). For this reason, the social category, which includes “social value”, “social impact” and “social mission” is a predominant topic in performance measurement for NPO. Also, Luke et al. (2013) suggested that differently from for-profit organizations that have profitability as a primary purpose, the underpinning objective of this kind of organization is to be financially viable such that they can continue to pursue their social mission. Furthermore, Costa et al. (2011) reported that long-term performance of NPOs concerns their capacity to expand social value as defined in their mission.

Complementary, stakeholder-related factors reflect the importance of different groups of stakeholders to NPOs, particularly the necessity to fulfill their requirements. Cordery & Sinclair's (2013) literature review showed that NPO would pursue to use appropriate approaches to measuring and managing performance to attend to stakeholders interest and requirements. Mano (2013) indicates that NPO must present regular and reliable reports to stakeholders mainly on the reach of social goals within the restrictions of the funding and resources provided. In this regard, transparency to stakeholders, including measures of performance is also expected. According to Costa et al. (2011), nonprofit organizations have emerged as significant actors for promoting social values. This increasing importance and influence has heightened requirements for more legitimacy and accountability, both internally and externally. In so doing, stakeholders can assess the impact of the activities developed by NPOs. Nevertheless, nonprofit “accountability” and performance measurement systems are usually more complex than those in for-profit companies, which focus on profit maximization and stockholders/shareholders as primary stakeholders. On the other hand, NPOs have a socially-oriented and ethically-based mission and deal with multiple and competing stakeholder demands. Nonprofits’ financial sustainability does not guarantee the achievement of the organizational mission and several studies suggest that there is a strong relationship between “market orientation” and organizational performance for NPOs (Duque-Zuluaga & Schneider, 2008; Walker *et al.*, 2011).

Factors in the managerial category reflect the concerns of NPOs to operationalize their activities so that their social objectives are fulfilled, as well as the requirements of their stakeholders. In this context, an important issue and prevalent topic is the dependence of NPOs on “resources” and “funding”. Moreover, the competition for financial resources to fund nonprofit services is intense. As observed by Moxham (2010) the provision of funding is dramatically decreasing.

In the same vein, Kaplan (2001) emphasizes the theme of accountability and performance measurement as urgent for NPOs due to the increasing competition for “funding”. Consequently, as clearly stated by Hodge and Piccolo (2005), to secure “funding”, nonprofits are under pressure to demonstrate “value for money”. In this context, NPOs have a constant concern to measure their performance to satisfy stakeholders’ expectations and consequently, to ensure their strategy in approaching “funding” and “resources” allocation and utilization. Similarly, “evaluation” is also a relevant topic and is directly related to “efficiency” and “effectiveness”. NPO should have approaches to performance evaluation that effectively capture both financial and social dimensions, which is crucial to demonstrate organizational legitimacy, transparency, credibility and to acknowledge the extent of their impact. According to Costa et al. (2011), because it is difficult to define clear key success performance indicators in NPO, it is also challenging to identify systems that are able to report to internal and external stakeholders on organizational “efficiency” and “effectiveness” - in other words, the extent to which organizations achieve their goals.

As already mentioned, once implementation factors are still being studied, three uncategorized factors were identified in the systematic literature review: “change management”, “empowerment” and “leadership”.

According to Bradshaw (2009), nonprofit boards have to implement change management processes that can be used to orient them in reflecting on their choices related to governance frameworks, providing indication of what contingency factors should be taken into account. Basically change management strategies, as compiled by Herman & Renz (1998), could cover aspects such as legitimation, retrenchment, and new revenue strategies.

Leadership could be approached in the support provided by the board of directors to both initiatives related to change, and the implementation of performance measurement systems. Harrison & Murray (2012) recognized that boards of directors have considerable impact on the performance of NPOs, their CEOs, and on the support of key stakeholders. Their leadership position could be used to build high-quality relationships. Becker et al. (2011), shows that implementation of performance measurement systems required not only the technical system to be successful, but also the support of senior management, with a strong commitment to development and implementation that facilitates a higher level of ownership and accountability for all involved actors.

Wellens & Jegers (2014) show that there is a consensus on the importance of an employee-organization fit. Particularly to volunteers, empowerment, quality of intra-organizational relationships and training and support seem to be important. Employees' empowerment can be achieved through formal and informal mechanisms at different levels, such as: personal job involvement and participation in overall organizational policy-making. Wellens & Jegers (2016) also commented that participation can be seen in a broader context as an instrument to empowerment and emancipation.

In summary, change management provided the meta framework for discussing performance measurement system implementation in NPO, that requires leadership from the top level as well as from the team that is in charge of the implementation process. Empowerment will give the involved actors autonomy for experimenting and customizing models according to contingencies.

4.2 Content analysis

This section presents the content analysis developed with the portfolio from the SLR to identify the factors that influence the *design* of PMS in NPO and public administration, and also a networking analysis.

4.2.1 Factors that influence the design of PMS in NPO and public administration

The set of papers that include the discussion about the factors that influence the design of PMSs in NPOs and public administration has 29 papers published in the period from 1998 to 2017 and represents the portfolio in this study.

Table 18 presents the title, journal and year of each paper. Classification of the journal in the SCImago Journal Rank is also provided for insight. The SCImago Journal Rank ranks the quality of journals in quartiles Q1, Q2, Q3, and Q4, where Q1 is high quality and Q4 is lesser quality, according to the subject area, that is also exhibited followed by the country of journal publication.

Table 18: Data of papers on design factors

(a)

#	Title	Journal	Year	Scimago: Quartiles	Scimago classification: Most relevant subject area	Country of journal publication
1	Developing a Conceptual Framework for Comparing Social Value Creation	Academy of Management Review	2014	Q1	Business, Management and Accounting	United States of America
2	What impact? A framework for measuring the scale and scope of social performance	California Management Review	2014	Q1	Business, Management and Accounting	United States of America
3	Measuring the business and societal benefits of corporate responsibility	Corporate Governance	2010	Q1	Business, Management and Accounting	United Kingdom
4	A process-based view of social entrepreneurship: From opportunity identification to scaling-up social change in the case of San Patrignano	Entrepreneurship & Regional Development	2010	Q1	Business, Management and Accounting	United Kingdom
5	Challenges for performance assessment and improvement in primary health care: The case of the Portuguese health centres	Health Policy	2009	Q1	Medicine	Netherlands
6	Performance Measurement: Examining the applicability of the existing body of knowledge to nonprofit organizations	International Journal of Operations & Production Management	2009	Q1	Business, Management and Accounting	United Kingdom
7	Understanding third sector performance measurement system design: a literature review	International Journal of Productivity and Performance Management	2014	Q1	Business, Management and Accounting	United Kingdom
8	Measuring the impacts of welfare service innovations	International Journal of Productivity and Performance Management	2013	Q1	Business, Management and Accounting	United Kingdom
9	Performance management challenges in hybrid NPO/public sector settings: an Irish case	International Journal of Productivity and Performance Management	2012	Q1	Business, Management and Accounting	United Kingdom
10	Organizational Goal Ambiguity and Performance: Conceptualization, Measurement, and Relationships	International Public Management Journal	2011	Q1	Business, Management and Accounting	United Kingdom
11	Performance assessment of housing associations	Journal of Housing and the Built Environment	2010	Q1	Social Sciences	Netherlands
12	Intellectual capital and performance measurement in healthcare organizations: An integrated new model	Journal of Intellectual Capital	2016	Q1	Business, Management and Accounting	United Kingdom

(b)

#	Title	Journal	Year	Scimago: Quartiles	Scimago classification: Most relevant subject area	Country of journal publication
13	Strategic performance measurement in a healthcare organisation: A multiple criteria approach based on balanced scorecard	Omega	2012	Q1	Business, Management and Accounting	United Kingdom
14	Performance measurement in the Third Sector: the development of a stakeholder-focussed research agenda	Production Planning & Control	2014	Q1	Business, Management and Accounting	United Kingdom
15	Learning, Innovating and Performance in Post-New Public Management of Locally Delivered Public Services	Public Management Review	2012	Q1	Business, Management and Accounting	United Kingdom
16	UK health sector performance management: Conflict, crisis and unintended consequences	Accounting Forum	2012	Q2	Business, Management and Accounting	Australia
17	Social impact measurement in social enterprises: An interdependence perspective	Canadian Journal of Administrative Sciences	2015	Q2	Business, Management and Accounting	United States of America
18	Market orientation and organizational performance in the nonprofit context: exploring both concepts and relationships between them	Journal of Nonprofit & Public Sector Marketing	2008	Q2	Business, Management and Accounting	United States of America
19	Performance and Commitment issues in Management of Volunteers in Human Service Organizations	Journal of Social Service Research	1998	Q2	Social Sciences	United States of America
20	The Performance of Decentralisation Strategies Compared: An Assessment of Decentralisation Strategies and their Impact on Local Government Performance in Germany, France and England	Local Government Studies	2011	Q2	Social Sciences	United Kingdom
21	Measuring performance in the third sector	Qualitative Research in Accounting & Management	2013	Q2	Business, Management and Accounting	United Kingdom
22	The Development of a Measurement Instrument for the Organizational Performance of Social Enterprises	Sustainability	2016	Q2	Social Sciences	Switzerland

(c)

#	Title	Journal	Year	Scimago: Quartiles	Scimago classification: Most relevant subject area	Country of journal publication
23	Measuring to Improve Versus Measuring to Prove: Understanding the Adoption of Social Performance Measurement Practices in Nascent Social Enterprises	Voluntas: International Journal of Voluntary and Nonprofit Organizations	2017	Q2	Social Sciences	United States of America
24	Performance Measurement for Social Enterprises	Voluntas: International Journal of Voluntary and Nonprofit Organizations	2015	Q2	Social Sciences	United States of America
25	Social impact measurement and non-profit organizations: compliance, resistance and promotion	Voluntas: International Journal of Voluntary and Nonprofit Organizations	2014	Q2	Social Sciences	United States of America
26	Organizational collaborative capacities in Disaster Management: Evidence from Taiwan Red Cross	Asian Journal of Social Science	2011	Q3	Social Sciences	Netherlands
27	Developing a comprehensive performance measurement system for waqf institutions	International Journal of Social Economics	2017	Q3	Economics, Econometrics and Finance	United Kingdom
28	Understanding accountability in social enterprise organisations: a framework	Social Enterprise Journal	2011	Not available	Not available	Not available
29	Angels on the head of a pin: The SAC framework for performance measurement in social entrepreneurship ventures	Social Enterprise Journal	2011	Not available	Not available	Not available

Figure 18 shows the distribution of papers and journals by the classification of quartiles. A set of 15 papers is classified in Q1, representing 52% of the total of papers (see blue column in the graph), from 13 different journals (see orange column in the graph), followed by 10 papers from 8 different journals in Q2.

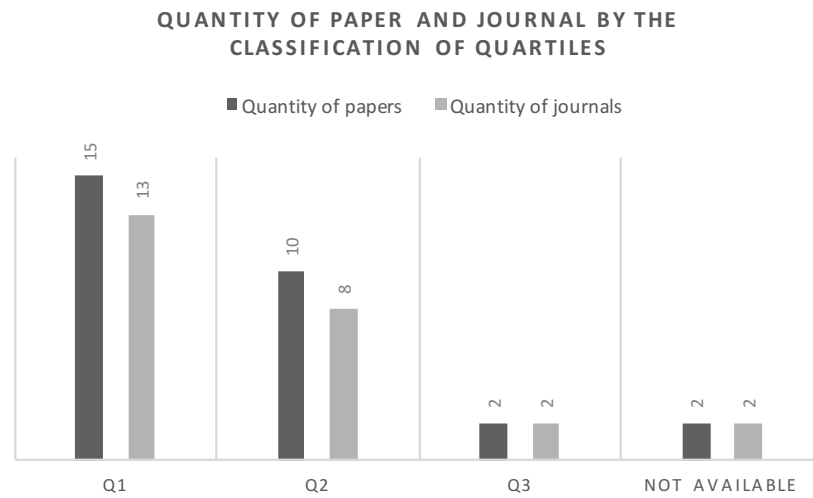


Figure 18: Quantity of paper and journal by the classification of quartiles

Curiously, almost all articles classified in Q1 are from journals in the business, management and accounting area and are not specific to a single sector, but include for-profit, NPOs, and public administration publications. This output highlights the attention of operations management and related research areas about the study of performance measurement in NPOs and public administration.

The distribution by publication year in Figure 19 shows a recent concern about the research area with 28 documents between 2008-2017.

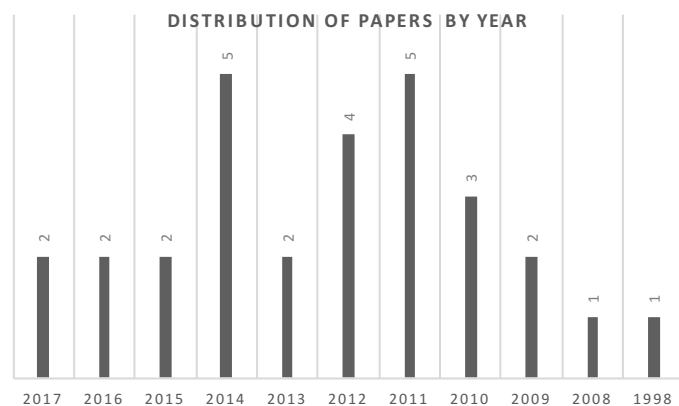


Figure 19: Distribution of papers by year

Publications in UK journals concentrate the most substantial portion with 14 papers, followed by publications from the United States of America with 8 papers, the Netherlands with 3, and Switzerland and Australia with 1 paper each.

It is worthwhile mentioning that this study focuses on factors that influence the design of PMSs for NPOs and public administration. In this way, the search terms defined in the SLR restricted the data collected, and some relevant papers about performance measurement in these kinds of organizations are not included in the portfolio because they do not present sufficient data about design factors. However, it does not mean that they are not studied and discussed in the analysis. In fact, they support the body of knowledge for comprehension of the research area and the review of outputs.

Almost all papers adopt the case study method (76%), showing a concern of the research area for understanding problems and demands from a practice standpoint. Social enterprises are the most often cited organizations, in 30% of the papers, as shown in Figure 20.

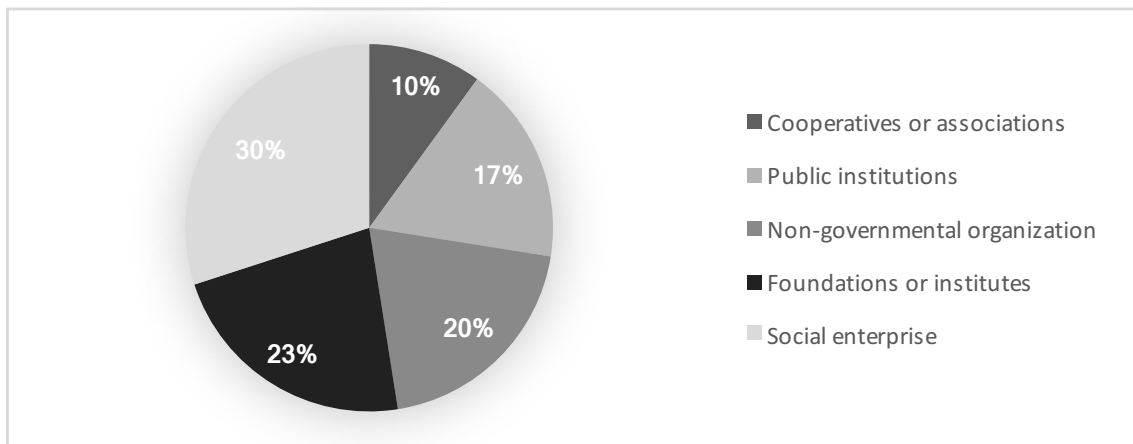


Figure 20: Frequency of types of organization

According to Mehrotra & Verma (2015), the work of social enterprises with different sectors for social development is generally related to education, health, employment, welfare, and the environment. Innovation is a challenge, and their particularities and social demands by the community increase the necessity for accountability and efficiency (Arena, Azzone & Bengo, 2015; Mehrotra & Verma, 2015).

Factors synthesis

After application of the content analysis method previously described in the research design, factors that influence the design of PMSs in NPOs and public administration were collected in the SLR. As mentioned before, this study focuses on the research about factors that affect the design of PMSs for NPOs and public administration, and so, the findings synthesize an analysis from an intense study of the portfolio. Through an iterative-inductive approach, a set of 10 factors were coded and summarized to provide a unique and comprehensive analysis of the design of PMSs in NPOs and public administration.

There was not a standard terminology for the factors, which in different works were called motivations, drivers or barriers, among other terms. Because of this, the identified factors were grouped and synthesized with the objective to provide a complete concept and comprehensive nomenclature. During this process, some similarities were noticed and factors were divided into three groups: factors related to purpose, factors related to stakeholders, and factors related to management. The main aspects related to these groups are listed next:

- *Factors related to purpose:* one of the most important characteristics of NPOs and public administration is their non-financial mission. Social value creation is more important to those organizations than profit, and social impact reflects the capacity of an organization to realize its mission. The goals of NPOs and public administration are focused on social outcomes and are defined through the identification of social needs. The factor “social approach” in this group reflects these concerns.
- *Factors related to stakeholders:* factors related to stakeholders refer to stakeholder’s multiplicity and diversity (internal and external), requirements to accountability, and influence. Stakeholders have a complex involvement with NPOs and public administration. They are linked with those organizations through funding, local needs, partnerships, and other motivations. They can influence organizational decisions, including the definition of performance measures and are the judges of legitimacy of actions. The factors in this group are “accountability”, “legitimacy”, “involvement and influence of stakeholders”, and “volunteering”.

- *Factors related to management:* these factors are related to a set of different concerns regarding the operation of NPOs and public administration. These organizations have to manage the availability of resources coming from donors, funders, and public investment, whose amount and continuity is influenced by political and economic circumstances, political pressure, resources restrictions, necessity of inter-local equity and other aspects. Organizational characteristics can also add to the complexity of operations in a public administration or NPO and influence measurement criteria, efficiency and effectiveness. This context makes long-term planning difficult and, depending on the situation, social impact can only be measured and assessed after some years. The search for continuous improvement can help organizational promotion and the establishment of a performance measurement culture. The factors in this group are “financial sustainability”, “short and long-term planning”, “fairness”, “effectiveness and efficiency”, and “strategic management control”.

Table 19 presents the synthesis and final concept of each factor identified in the content analysis process. The authors who addressed and discussed each factor are listed, together with the number of papers in which the factor was cited.

Table 19: Factor concept and frequency of review

(a)

Group	Factor	Concept	Authors	Number of papers
Purpose	Social approach	The description of social approach can be summarized in the key features involved in a public administration's and NPO's mission. The pursuit of social goals ahead of profit differentiates an NPO and public administration. The social value creation refers to the outcomes and tend to be intangible. The social impact will be intangible too, qualitative and its effect will be seen in long-term, i.e., the changes promoted by the organization as an improvement in the well-being of a patient or citizen. Although financial results sometimes do not show it, positive results through social value creation translates into social impact in the long-term, is an important index of the effectiveness and the capacity of these organizations to realize their mission.	Amado & Santos, 2009; Arena et al., 2015; Cordery & Sinclair, 2013; Drews, 2010; Duque-Zuluaga & Schneider, 2008; Ebrahim & Rangan, 2014; Grigoroudis, Orfanoudaki, & Zopounidis, 2012; Kroeger & Weber, 2014; Lane & Casile, 2011; Perrini, Vurro, & Costanzo, 2010; Sillanpää, 2013; Taylor & Taylor, 2014; van Overmeeren, Gruis, & Haffner, 2010	13

(b)

Group	Factor	Concept	Authors	Number of papers
Stakeholders	Accountability	Accountability is one of the factors that most concerns NPO and public administration and is a way of holding account and providing reports. Usually, legislation is the primary driver for accountability, mainly financial reports as a contractual or statutory obligation. External stakeholders such as regulatory agencies, funders, and governmental departments, are the actors to whom these reports are addressed. Legal financial reports are a critical aspect for these organizations because in some cases, stakeholders require reports in short-term, but social value and social impact can take more time to be perceived and measured. Accountability can also be used to attract new donors and funders.	Arena et al., 2015; Connolly & Kelly, 2011; Cordery & Sinclair, 2013; Crucke & Decramer, 2016; Ebinger, Grohs, & Reiter, 2011; Ebrahim & Rangan, 2014; Moxham, 2009, 2014; Noordin, Haron, & Kassim, 2017; van Overmeeren et al., 2010	10
Stakeholders	Legitimacy	Legitimacy in the NPO and public administration context can be defined as the perception by the stakeholders that activities are being properly developed, considering legal and contractual obligations, the goals and social mission. Legitimacy is motivated by a desire for organizations to be transparent and, through legal obligations and performance reports, promote themselves. Because of this, demonstrating their activities is an important mechanism to increase legitimacy and to contribute to attracting new funders, donors and other stakeholders.	Arvidson & Lyon, 2014; Connolly & Kelly, 2011; Conrad & Guven, 2012; Cordery & Sinclair, 2013; Duque-Zuluaga & Schneider, 2008; Lall, 2017; Moxham, 2009, 2014; Nguyen, Szkudlarek, & Seymour, 2015	9
Stakeholders	Involvement and influence of stakeholders	Public sector, donors, public and private funders, community, regulatory agencies, tax authorities, beneficiaries, suppliers, partners, staff, and volunteers are examples of stakeholders that are related to the context of NPO and public administration. These stakeholders are involved with those organizations through funding, local needs, partnerships, and other motivations. They have a complex involvement with the organization and influence the management and organizational decisions, including the definition of performance measures.	Allen, 2011; Amado & Santos, 2009; Arena et al., 2015; Arvidson & Lyon, 2014; Conaty, 2012; Conrad & Guven, 2012; Drews, 2010; Duque-Zuluaga & Schneider, 2008; Grigorioudis et al., 2012; Kinder, 2012; Pirozzi & Ferulano, 2016; Taylor & Taylor, 2014	12
Stakeholders	Volunteering	Volunteers contribute to the development of activities of public organizations and NPOs without contractual obligations but with interest in participating in social actions. They usually present different requirements and expectations compared to other internal stakeholders and will influence the management style and organizational culture.	Cnaan & Cascio, 1998; Duque-Zuluaga & Schneider, 2008; Taylor & Taylor, 2014	3
Management	Financial sustainability	As the NPOs and public administration has financial restrictions, and its focus is social value creation, their management is affected by that condition. Donations, investments, and subsidies are examples of sources of income. Some of these sources are not guaranteed for reasons such as political issues, and economic crises. So, it is a matter of organizational survival for an NPO and a public administration to maintain alternative sources of income to maintain their financial sustainability and provide their services.	Allen, 2011; Arena et al., 2015; Cordery & Sinclair, 2013; Duque-Zuluaga & Schneider, 2008; Lane & Casile, 2011; Sillanpää, 2013; Taylor & Taylor, 2014	7

(c)

Group	Factor	Concept	Authors	Number of papers
Management	Short and long-term planning	NPO and public administration need to manage the instability of availability of resources influenced by the economic situation, political pressure, resources restrictions, need for inter-local equity and other problems. This context makes long-term planning more difficult and, depending on the situation, social impact can only be measured and assessed after several years.	Jung, 2011; Taylor & Taylor, 2014	2
Management	Fairness	The need to provide inter-local equity is a characteristic in some NPOs, and mainly in public organizations. For some of them, resources must be mobilized to provide a homogenous level of service, guaranteeing that social value creation promotes the same social gain.	Amado & Santos, 2009; Arena et al., 2015; Ebinger et al., 2011	3
Management	Effectiveness and efficiency	It is possible to conclude that characteristics like social mission, financial sustainability, intangible results, and multiplicity and involvement of stakeholders can contribute to the complexity of operations of NPO and public administration and influence their efficiency and effectiveness. Effectiveness refers to the achievement of social goals and its social impact, and efficiency is a dimension that translates cost-efficiency of service production and refers to operations, resources, and delivery of outcomes and benefits to the public.	Amado & Santos, 2009; Arena et al., 2015; Conrad & Guven, 2012; Ebinger et al., 2011; Lane & Casile, 2011; Moxham, 2014; Sillanpää, 2013; Taylor & Taylor, 2014	8
Management	Strategic Management Control	The development of an environment open to learning and continuous improvement can contribute to the public administration's and NPO's promotion to stakeholders and create an organizational culture to measure its performance. In this context, a PMS can support the management and helps provide a way to organizational learning, and to promote continuous improvement through its use by all staff and volunteers.	Cordery & Sinclair, 2013; Crucke & Decramer, 2016; Duque-Zuluaga & Schneider, 2008; Ebrahim & Rangan, 2014; Lall, 2017; Moxham, 2009; Noordin et al., 2017; Nguyen et al., 2015; Pirozzi & Ferulano, 2016; van Overmeeren et al., 2010	10

Conceptual model and discussion

The conceptual model presented in Figure 21 shows the set of factors that influence the design of PMSs in NPOs and public administration and summarizes the identified literature. This figure represents the organizational context showing the set of factors that influence the design of PMSs. In the center of Figure 21 is the context of NPOs and public administration. Firstly, the managerial aspects involved in NPOs and the public administration context and the factors related to management are highlighted: “financial sustainability”, “short and long-term planning”, “fairness”, “effectiveness and efficiency”, and “strategic management control”. Similarly, as a traditional company, NPOs and public administration need a strategy to reach their social mission and social goals and this reflects on organizational management.

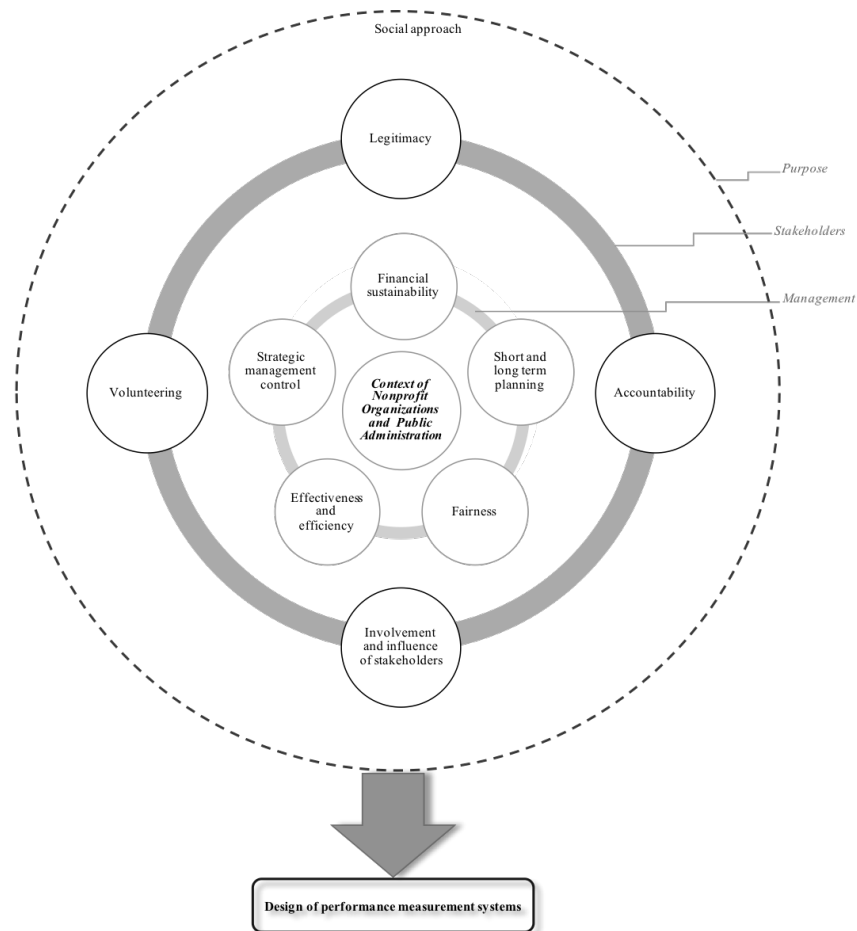


Figure 21: Conceptual model

Sometimes, there is a strong pressure for results, and there is an expectation of managing these organizations similarly to a regular business, with concerns to customer orientation, innovation, sustainability and efficiency (Kong, 2010b; Sillanpää, 2013). This situation is highly affected by resources to be provided by alternative financial sources such as donors, subsidies, funders, and investments that can be vulnerable to the political and economic situations, for example. Finally, managerial needs have to consider fairness, many times required by public organizations, and deal with the resistance to use the system towards learning and staff improvement. Sometimes there is resistance from staffs to use a new or complex software (Cordery & Sinclair, 2013; Arvidson & Lyon, 2014). Some stakeholders have their own requirements, so NPOs and public administration must comply to these requirements for accountability and legitimacy purposes (Karwan & Markland, 2006; Amado & Santos, 2009; Arvidson and Lyon, 2014).

Around the management context, factors related to stakeholders are highlighted: “accountability”, “legitimacy”, “involvement and influence of stakeholders”, and “volunteering”. Donors, public and private funders, the community, regulatory agencies, tax authorities, beneficiaries, suppliers, partners, staff, multiple types of beneficiaries, and volunteers are examples of the main kind of stakeholders that are related to the context of NPOs and public administration. These stakeholders are involved with such organizations through funding, definition of local needs, partnerships, and other motivations (Conrad & Guven, 2012). Berenguer (2015) explains that the multiplicity of stakeholder impacts in a complex supply chain structure which makes it difficult to define performance metrics. Legal, financial and performance reports, correspondence of accountability and the increase of legitimacy are a critical aspect for these organizations because stakeholders usually require reports in the short-term, but social value and the social impact usually take more time to be perceived and measured (Moxham, 2009; Lall, 2017). As explained by Schiffing & Piecyk (2014), PMSs should be designed and used to inform donors and other stakeholders about performance metrics. Reports can help secure investments through donations and grants in a highly competitive and dynamic market. Lastly, volunteering represents the motivations and expectations of a particular kind of stakeholder in NPOs and public administration, directly impacting its operations and results, and that, because of this impact, deserves close attention (Duque-Zuluaga & Schneider, 2008).

Around the management’s and stakeholders’ aspects, there is the purpose of both NPOs and public administration. Social aspects are important variables for those organizations, characterizing its organizational purpose, reflecting longer term tangible or intangible results that represent the effort to reach social mission and social value creation (Sillanpää, 2013). Usually, social impact on a given society can only be measured in the long-term (Drews, 2010). This situation represents a challenge to NPOs and public administration in relation to their stakeholders, that have a direct interest in social value creation (Cordery & Sinclair, 2013; Ebrahim & Rangan, 2014), particularly considering accountability and legitimacy aspects (Arvidson & Lyon, 2014). Also, the measurement of social impact is a complex task because it involves intangible results and community interests, as well as the interpretation of unmeasured and unquantifiable dimensions that represent social value (Lane & Casile, 2011).

The set of ten factors indicates the importance of this study for NPOs and public administration and how complex a PMS can become in this context. This study identifies, summarizes and conceptualizes these 10 factors that are particularly different from the design aspects of PMSs

in traditional for-profit organizations, and draws the entire extent of these factors, linking them. No individual paper collected in the SLR shows a similar organization of the factors as presented in this study, considering the different types of NPOs and public administration.

It is not the intention of this paper to provide the performance metrics or to draw a framework to be used by organizations. The main goal is to provide a consistent list of factors that must be analyzed and assessed in the routine of an organization or in academic research to design an adequate and useful PMS considering critical and specific characteristics of NPOs and public administration. Some insights and practical implications of the factors are shown in Table 20.

Table 20: Practical implications

Group	Factor	Practical implications
Purpose	Social approach	The mission must be well-established and the social purpose must be in evidence; The definition of performance indicators must consider the social value creation (in short and medium-term), and social impact (in long-term);
Stakeholders	Accountability	All external requirements for financial and performance reports must be considered, including the performance indicators definition and standards of documents and reports
Stakeholders	Legitimacy	The PMS must be designed to provide performance data to improve the management and support the legitimization for external stakeholders;
Stakeholders	Involvement and influence of stakeholders	Strategic stakeholders could participate in the PMS design; The interface of the PMS must be able to work with data from and to external platforms;
Stakeholders	Volunteering	The PMS must support the managers to evaluate and reward volunteers according to legal aspects and organizational culture;
Management	Financial sustainability	Performance indicators could help the management of alternative sources of income and the sustainability;
Management	Short and long-term planning	Features of short and long-term required by stakeholders must be designed; Performance indicators in short and long-term could be provide to support the organizational promotion and accountability;
Management	Fairness	Performance metrics can support the analysis of fairness;
Management	Effectiveness and efficiency	Performance indicators that translate effectiveness and efficiency must be defined to support the managers, decision-making, and the accountability process;
Management	Strategic Management Control	The PMS must support the managers through useful performance metrics to support making-decision and to encourage the learning and continuous improvement in all levels of the organization.

Results suggest that despite the increase in the number of studies about PMSs for NPO and public administration in the last decade, gaps can be identified and more investigation must be conducted, such as terminology discrepancies, the definition of kinds of NPOs, especially by the increase in number of social enterprises, design features of PMS for NPOs and public administration, unique characteristics that differentiate NPOs and public administration from a for-profit, and strategies to design a PMS that works iteratively with PMM to support organizational management and decision-making.

The outputs corroborate with Bourne et al., (2005) and Melnyk et al., (2014) that the use of PMS considering a turbulent and complex environment can be complicated to be delimited both for large organizations and for nonprofits. As Bourne et al., (2017) argue, some concerns have been raised in the investigation of adequate development and use of PMM. In a perspective of control management, the use of PMM as a tool for monitoring and control can only be harmful to learning. In this way, this paper indicates a concern to learning and continuous improvement through the study of the factor “strategic management control” that should be analysed and considered in the PMS design in the NPOs and public administration context. Also, the authors indicate a concern with the view of PMM as a tool for anticipating results because of the dynamic and constantly changing environment. This paper answers this matter through the investigation of the factors related to management, especially about “short and long-term planning” and “financial sustainability”, which are central issues in NPOs and public administration so they are managed in a way to differentiate them from for-profit organizations, considering their nature and complexity. Also, according to Berenguer (2015), it is a challenge to define a common performance metric to be used by all NPOs. They present some performance metrics for NPOs in the context of humanitarian relief in three capacities:

Input metrics refer to the time and the value of the resources needed to run the operation.

Output metrics are related to the operation’s strategic goal and value the quantity, distribution or quality of product or service produced. Finally, *efficiency metrics* refer to the ability of producing maximum outputs with minimum inputs. (italics in original).

For the input metrics, the authors suggest metrics referred to costs, time, and donations. In outputs perspective, metrics are related to effectiveness, equity, equality, and social welfare. For efficiency metrics, described “as the ratio of output to total input” (Berenguer, 2015, p. 23), the authors suggest metrics to technical and allocative efficiency, flexibility, and sustainability. In fact, all these proposed performance metrics support the understanding and confirm the conceptual model proposed in this study. These metrics show that NPOs work in a specific way that is different than for-profit organizations. For example, the metric related to donation is specific for nonprofit operations and is described as a factor that influence the design of PMS because it is related to the alternative sources of income needed to manage the financial sustainability of those organizations. For the outputs perspective, the metrics related to equity, equality and social welfare are also considered in the factors fairness and social approach.

Mouchamps (2014) analyzed PMSs in the context of social enterprises and concluded that none of the studied current frameworks present enough features to address their particularities. The author defined seven normative criteria, and the BSC met two of them, the same amount as the GRI (Global Reporting Initiative), while SROI met three criteria. For the authors, it is not possible to summarize all social enterprise characteristics through the BSC dimensions. The GRI does not examine the mission as the main issue in of the framework and, in this way, it is impossible to link one of the most distinct features of an NPO, its social mission, into this model. The SROI could be adapted to incorporate more performance dimensions, but it would change its main feature of presenting only one ratio.

Findings of this paper prove the importance and necessity to study NPOs and public administration and distinguish them from for-profit organizations in performance measurement aspects. The study in this thesis concurs with the gap in the research area indicated by Moxham (2009) in that many studies have been developed for PMS, but the research about the design of the system has still limited contributions. Studies about PMM need to be included in the operations management agenda (Straub, Koopman & Mossel, 2010).

4.2.2 Social network

A network study was performed to understand how design factors are related to each other. For this, a factors network was drawn. Each factor is represented by a vertex in the network, while each edge represents the co-occurrence of a pair of factors in the 29 papers selected for content analysis (e.g., the number of references in which they were identified appearing together). The degree centrality measure is used to calculate the number of relationships a given factor directly has to others. Table 21 provides the degree centrality scores.

Table 21: Score of degree centrality

Factors	Degree centrality	Factors	Degree centrality
Social Approach	16	Financial sustainability	14
Accountability	17	Short and long-term planning	8
Legitimacy	9	Fairness	9
Involvement and influence of stakeholders	16	Efficiency and effectiveness	15
Volunteering	2	Strategic management control	10

Figure 22 shows the factors network from a degree centrality perspective – the most central the factor, the closer it is to the center of the figure. The edge thickness represents the number of co-occurrences of a pair of factors, from Table 7.

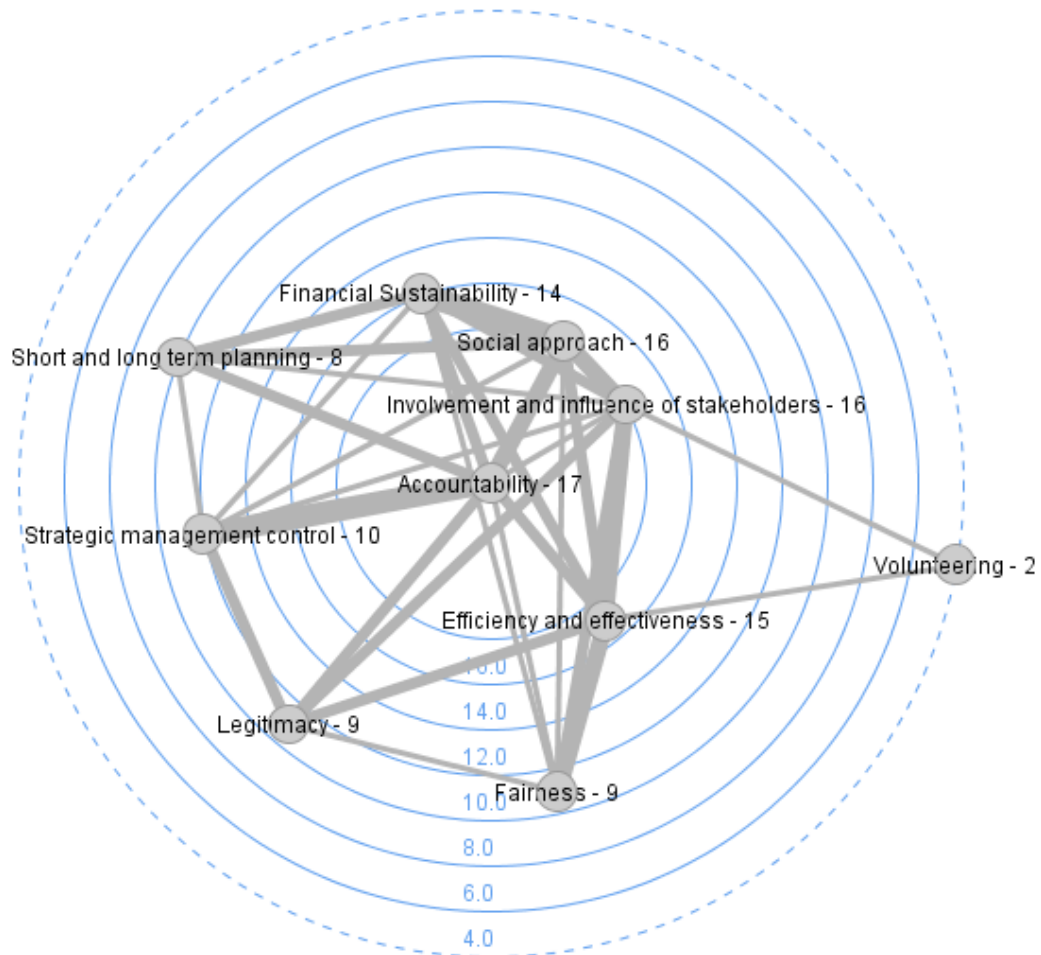


Figure 22 – Network of the factors that influence the design of PMS for NPO and public administration organized by degree centrality

All factors are indicated in the graph and the numbers represent the amount that they are present in the studied papers. The ‘accountability’ is the design factor with the highest degree centrality and is positioned in the center of the network followed by the ‘social approach’ and ‘involvement and influence of stakeholders’. ‘Accountability’ has direct relations with other identified factors in the reviewed literature, such as ‘strategic management control’ with four occurrences, and ‘social approach’ with three, ‘financial sustainability’ and ‘legitimacy’ with two occurrences. ‘Volunteering’, on the other hand is the design factor with the lowest degree

centrality, and is linked to only two other factors: ‘involvement and influence of stakeholders’, and ‘efficiency and effectiveness’.

Van Overmeeren et al. (2010) and Arvidson & Lyon (2014) consider that the pressure that stakeholders’ demands impose over PM is the primary motivation for reporting performance results, which explains why the factor ‘accountability’ appears close to the center of the network. According to Conaty (2012) and Arvidson & Lyon (2014), pressure and requirements from stakeholders could represent a discomfort for NPO. For Julnes (2006), accountability should be seen as a way to improve NPO's performance and not as a form of punishment when services are not delivered according to the expectations. Indeed, stakeholders’ management is a considerable challenge for NPO. As argued by Lee & Nowell (2015), “each funding source suggests a different audience and consumer of performance measurement information”. According to the authors, different sources of income may raise different concerns over funding. When funding comes from a commercial source, the concern will most likely be related to the efficiency of its use. In government funding, the concern will focus on accountability and equity. In corporate financing, the main concern will be visibility and public value, whereas in private donor funding, the main concern will be on social change. A case study presented by Carnochan *et al.* (2014) exhibits the results of a PM design project, showing that managers are concerned with mandatory performance measures and, in some cases, these are the only measures. “There was a common tendency among program managers and line staff to believe that funders care more about specific organizational outputs (e.g., number and type of clients served) than client outcomes. So, in this dynamic and complex context, for Conaty (2012) and Taylor & Taylor (2014), an NPO has to manage prioritization of multiple accountabilities in their own strategic plan.

In many cases, stakeholders are responsible for financially sustaining NPO, so the concern about resources and funding are challenging issues for the organizational management. For Thomson (2010), “given the dependence of most organizations on external funding, it is logical to expect funder mandates to substantially affect the extent of PM”. This situation represents a difficulty in proving impact and outputs for stakeholders that require evidence of quality services and results.

Multiple stakeholders’ demands imply in a complex system for monitoring NPO results. How to measure operational efficiency, the efficient use of resources and the effectiveness of results is a challenging task considering the nature of an NPO, stakeholders interests and the differences in stakeholders requirements, especially to public sector operations (Karwan &

Markland, 2006). The cost of provided services can vary according to local needs and financial resources usually come from many different sources. Amado & Santos (2009, p.47) argue that NPO “respond to external forces, in particular, government pressure to improve primary care delivery for the local population using the limited resources available”. Organizations that depend on volunteers may have difficulty allocating human resources in all activities, either because of their availability or interest in a given task (Cnaan & Cascio, 1998). Also, proving a positive result is achieved, although the financial indicator doesn't show this, is a considerable challenge to determining the effectiveness of the outputs for stakeholders. Sometimes the relationship between services and income stream may be non-existent or yet doesn't reflect the expected level when compared with outputs levels (Lane & Casile, 2011) but this does not mean that social impact is not high.

The ‘social approach’ is another design factor with the highest centrality of degree after ‘accountability’ and it is positioned close to the center of the network. This factor has direct links with six other factors: as ‘financial sustainability’, ‘accountability’, ‘short and long-term planning’, ‘involvement and influence of stakeholders’, ‘efficiency and effectiveness’, and ‘strategic management control’.

Understanding how the ‘social aspects’ factor works with other factors can justify the reason for this factor to be shown close to the highest degree centrality. Firstly, social aspects are the primary motivation for NPO’ activities. Social aspects involve the organizational mission, vision and the establishment of goals and targets that define measures for assessing social impact and social value creation. Poister et al. (2014) discuss the importance of the mission, clear goals, and objectives for organizational performance, and they argue that “usually the most meaningful performance measures are derived from the mission, goals, objectives, and, sometimes, service standards that have been established for a particular program”. Secondly, an NPO can't legally share financial profit with owners or funders, so social value creation is the main objective to be pursued. According to Pirozzi & Ferulano (2016), “in NPO, the financial aspects are not as important as the human and social aspects. Indeed, an NPO's mission to deliver services while keeping in touch with end-users is crucial”. This context justifies the necessity for alternative sources of income. Sources of income may vary according to NPO, but, in general, donations, investments, financing, and subsidies are the main origins. In this sense, an NPO must cope with legal obligations to produce financial and performance reports as a way to provide accountability to stakeholders. This context implies in trust and

credibility by stakeholders through tangible and intangible results, as highlighted by Moxham (2009).

Lastly, stakeholders can influence social characteristics in the definition of organizational goals, in how to measure social impact and social value, and in the consideration of community interests. Also, as pointed out by Kong (2010), the decline in tax support and political divergences delineate a challenging context for an NPO to operate. In this way, accountability can be required in the short-term while the measurement of social impact is only possible in the long-term. Social value creation and social impact depend on many variables, and their perceptions may be in the long-term only. So, stakeholders' requirements for reports in the short-term can be a challenge for the management. Besides, in some situations, the uncertainty of financial inflows may disturb the social goals planning but directly impacts organizational efficiency and effectiveness.

Having understood the relationship among design factors, it is possible to synthesize some practical implications for the design of PMS in NPO and public administration that are presented in the next section.

Practical implications for the design of PMS in NPO and public administration

The content analysis and the network study may offer insights for managers when considering the factors for the design of PMS in NPO and public administration. Some factors are usually not present in business models and are intrinsic characteristics of an NPO and public administration – e.g., social approach, volunteering, and alternative sources of income related to their financial sustainability. Usually, these factors are not included in generic PMS, but are present in the routine activities of the organization. Even more general factors such as efficiency and effectiveness are influenced by the nonprofit or public organization context through factors such as social approach and other intangible variables.

The use of PMS seems helpful for organizational management in three perspectives: the organizational purpose through the consideration of social approach; the perspective of stakeholders through the consideration of accountability, legitimacy, involvement and influence of stakeholders, and volunteering; and the perspective of management through the consideration of financial sustainability, short and long-term planning, fairness, efficiency and effectiveness, and strategic management control. No evidence was found of other studies with such a comprehensive list of factors for the design of PMS in the NPO and public context.

Derived from the study of factors and how they are related, it is possible to offer some practical implications for PMS design in nonprofit and public sector, presented in Figure 23.

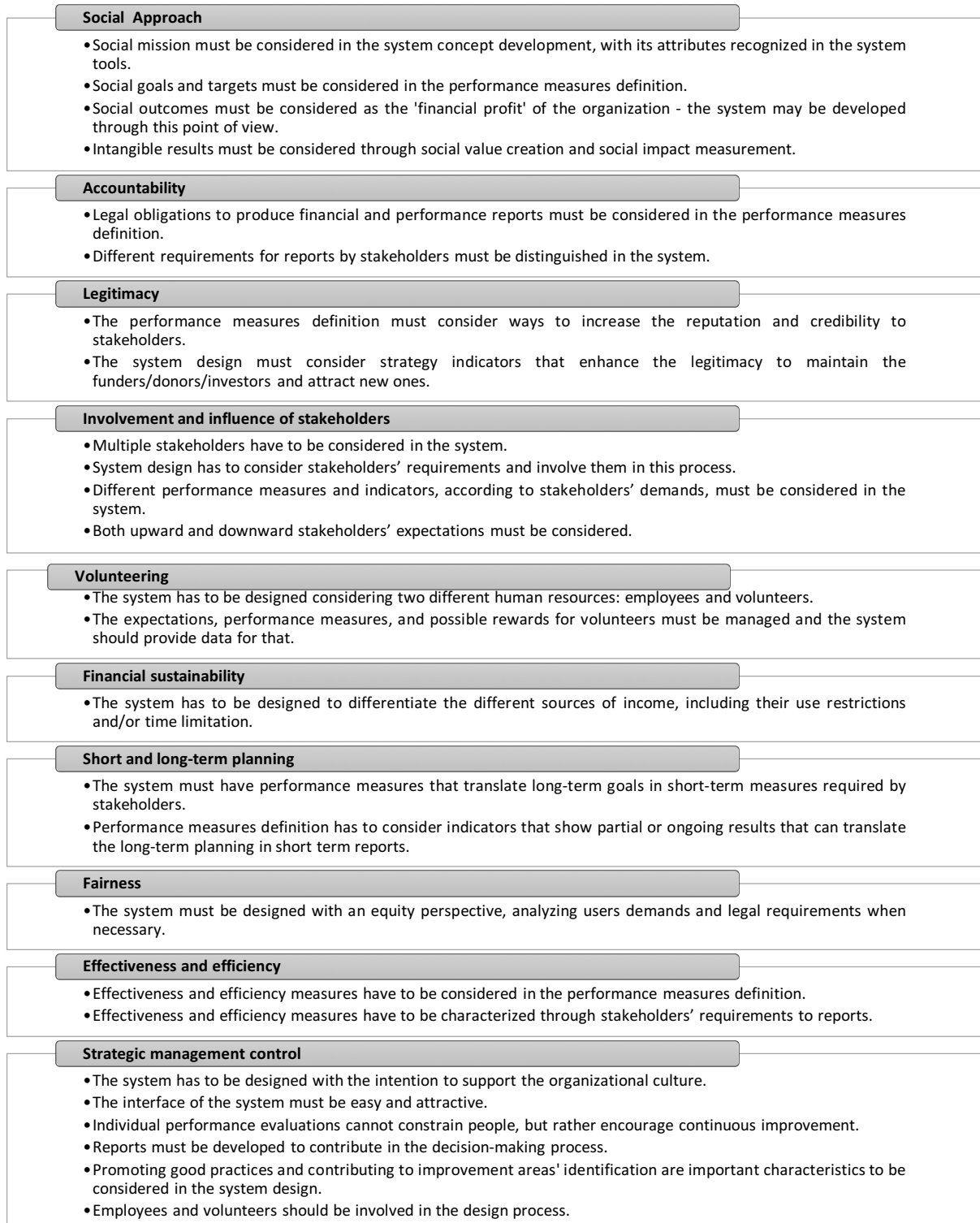


Figure 23 - Practical implications for the design of PMS in NPO and public administration

Considering the design factors analysis and the proposed practical implications for the design of PMS in NPO and public administration, next section presents the case study development.

4.3 Case studies

The case study technique is applied in this study. The applicability of the case study in the field of operations management increases the comprehension of complex issues and leads to innovative contributions (Stuart *et al.*, 2002; Barrat, Choi & Li, 2011). This section presents the overview of the organizations of the case studies and a summary of the answers based on the questionnaire for each factor that may influence the design of PMS in a NPO or public administration. After that, a discussion about the results is performed.

4.3.1 Overview of the organizations

Table 22 presents a brief of the details of each organization in this study. The organizations are identified as:

- US.NPO.1: NPO from United States of America;
- BR.NPO.1: first NPO from Brazil;
- BR.NPO.2: second NPO from Brazil;
- US.PA.1: public administration from United States of America;
- CA.PA.1: public administration from Canada;
- BR.PA.1: public administration from Brazil.

None organization is volunteering-based but one works with the volunteers in its primary activity, and two of them work with volunteers in the secondary activities. Also, none organization has only one funding mechanism, but one source usually is the most relevant. For this set of studied organizations, the NPOs work based on projects and the public administrations based on a structure of institutional planning.

Table 22: Overview of the organizations

Organization	Activities	Structure	Beneficiary focus	Number of paid staff	Number of volunteers	Annual income	Funding mechanism
US.NPO.1	Research and development	Projects	National	453	Not applicable	US\$34,307,718	Mainly from contracts and sponsors
BR.NPO.1	Community-based projects	Projects	Local	9	800	Not available	Mainly from sponsors
BR.NPO.2	Research and development	Projects	National	Around 175	Not applicable	Around R\$30.000.000,00	Mainly from contracts and subsidies
US.PA.1	Safety	Institutional planning	Local	250	Not applicable	US\$ 22,000,000	Mainly from city taxes
CA.PA.1	Safety and fire prevention	Institutional planning	Local	Around 2800	Up to 50	C\$360,000,000	Mainly from city property taxes
BR.PA.1	Response and disaster prevention	Institutional planning	State	41	Up to 50	Not available	Mainly from state taxes

Two NPO are institute for research and development while the another one, the BR.NPO.1, is a foundation that works with the support of its main sponsor which is the creator of the institution. Although this foundation work with 9 paid employees, they have 800 volunteers under their management. It is a huge responsibility and illustrates the relevance of the volunteering management in these organizations. For the two institutes of research and development, the primary source of income is from their sponsors and contracts and, in some cases, they are eligible for government subsidies.

The public administrations work to the safety and prevention of accidents or disasters of the large public, i.e., the community, citizens, residents, and visitors. Two of them have the volunteering in their routine but not for primary activities. It is worth mentioning that the CA.PA.1 participates in a benchmarking network with other Canadian cities and often compare themselves with other similar departments in Canada and the USA, which improves pretty much their performance management, strategy and making-decision.

4.3.2 Main outputs and discussion

This section presents a discussion of each factor that can influence the design of PMS in NPO and public administration and for that,

Table 23 summarizes all the answers from the 6 organizations in the case study captured through the interviews, observations, documents and records analysis. See Appendix B for a complete analysis of all studied organizations.

The outputs point that some factors were not considered in the design of the PMS, as the use of PMS to support the legitimacy or the strategic management control, but the routine of those organizations indicates that they influence the management and their activities, so they could be supervised through the performance measurement. Besides that, the interviewees tend to admit their relevance and mention a concern about that for future management reviews.

Table 23: Summary of the answers by factor

Group	Factor	Summary of the answers
Purpose	Social approach	Both NPOs and public administration in this study show that the social value and the social impact are not being properly measured in the organizations. Also, there is a difficulty to gather community interests because of the high cost for that or by management interests to provide efforts for that.
Stakeholders	Accountability	Both NPOs and public administration point the practice of the accountability. The PMS provide information and contribute to attend requirements from external stakeholders.
	Legitimacy	None organization in this study use the PMS to support the process of legitimization. However, they recognize the importance of the legitimacy and that the PMS could help in this way.
	Volunteering	In this study, 2 public administrations and 1 NPO work with volunteers. However, none organization studied in this research provide a PMS that evaluate the volunteers.
	Involvement and influence of stakeholders	The studied organizations show that the involvement of stakeholders and their requirements can affect the performance measurement and management in different ways as governmental and political issues, legal obligations or contractual aspects.
Management	Financial sustainability	All the organizations in this study manage their finances from alternative sources of income, but almost all of them there is no way to control them individually and get performance indicators according to investments, donations or other sources.
	Short and long-term planning	All the organizations work with critical issues related to the short and long-term in this study. The planning is affected by political or budget issues, and the measurement of long-term aspects can be complex.
	Fairness	None organization in this study has an obligation to work with the fairness sense but they indicate awareness about it.
	Efficiency and effectiveness	All organizations present efficiency measures but none for the effectiveness. Also, the difficult to measure and manage intangible results is cited beyond the difficult to create an organizational culture to use the PMS as a management tool and not as a competition or an individual control.
	Strategic management control	Two of the organizations use the PMS systematically but it is not available for all levels of the organization, and just in one of them the system supports the learning and continuous improvement efficiently.

The findings in the case study suggest that the no PMS is mature enough to consider all the set of factors. It is possible to argue that, in some organizations, a factor could not be significant to

be drawn in the design process, e.g. volunteering and fairness. However, this decision has to be made after an assessment of the pertinence or not to the organizational routine, especially if a new feature or indicator can help toward legal obligations, trust, management control or satisfaction.

Social approach

Both NPOs and public administrations in this study show that the social value and the social impact are not being properly measured in the organizations but the literature points how important those measures can be to get more investments, attract new investors or donors, improve the legitimacy and so on. However, the literature also indicates how difficulty is to define measures to social aspects. Also, there is a difficulty to gather community interests because of the high cost for that or by management interests to provide efforts for that.

The social approach in NPOs and public administrations is reflected in their mission focusing on social goals, social value creation, and social impact as a way to prove their effectiveness and to provide legitimacy. The concept of the value refers to costs which is connected to the operational efficiency (Kaplan & Norton, 2001; Porter, 2010). The Porter's study about value for health care sector shows that the costs and outcomes should be measured around the client which would increase the management analysis and the comprehension about the real need of costs allocation and the allocation the other resources adequately. The author explains the relevance of the value creation and argues that "if value improves, patients, payers, providers, and suppliers can all benefit while the economic sustainability of the health care system increases" (Porter, 2010, p. 2477). Therefore, the value shall be measured by the outcomes and not by the amount of performed services.

In the study about Balanced Scorecard (BSC) and value-creating strategy, Kaplan & Norton (2001) discuss the adoption of BSC framework by governmental organizations. They argue that an agency can use the BSC and three more perspectives should be add in the financial and customer objectives: cost incurred (which emphasize the operational efficiency and should consider the costs of agency and the social costs imposes on citizens), value created (which is the most difficult perspective to be measured and is related to the social benefits created for the citizens which one will judge the outputs versus the fees and taxes paid), and legitimizing support (especially the donors' trust - or who provide the funding, and after, the credibility for citizens and taxpayers).

Sillanpää (2013) argues that the welfare services have difficult to measure and to demonstrate the impact of their activities. Usually, they are financed by the public sector, and the services are offered in cooperation with multiple organizations. They propose a framework for a new impact measurement model that considers the service system level (tangible and quantitative impacts) and the individual level (intangible and qualitative impacts). They argue that the impact measurement in this context is complex and the “information on impacts related to different services is needed in order to select those that produce effective results at reasonable costs: i.e. are cost-effective. In order to assess the success or failure of new service models and interventions decision makers need information on their long-term impacts at various levels, i.e. at the individual and at the service system level”.

Clark & Brennan (2012) develop the conceptual framework for social entrepreneurship Proposed Balance Value Matrix (BMV), and they propose a dimension that examines the value creation measurement. The BMV considers the outputs, outcomes, and impact in a context of stakeholders’ involvement and the time. According to the authors, the impact is the most meaningful value for the beneficiaries. Although the outputs are delivered well-done, and the outcomes are considered obtained by the organization, the impact for the beneficiaries may not reflect all expected benefits. So, the measurement and management of the long-term impact should be adequately examined. According to Karwan & Markland (2006) in the study about the public sector productivity, a delivered service will be characterized as valid when the outputs and outcomes are valuable for their clients/beneficiaries/users and how to distinguish this value is a principle in constant evolution in the management context.

In the study of PMS for social enterprises, Arena, Azzone & Bengo (2015) propose a framework for the system design and the information about the stakeholders’ needs have to be collected including internal and external stakeholders as a step of the design process. Community and other municipalities were characterized as potential stakeholders to be helpful in the PMS design and information need definition. In the case study, the community is defined as a concerned stakeholder about the organization's activities. “These people do care of the quality of the service received but also of how it may impact the community positively and negatively. In term of performance dimensions, these stakeholders resulted interested mainly in management effectiveness, social effectiveness, and impact” (Arena, Azzone & Bengo, 2015, p. 665).

Clients, beneficiaries, users, costumers, taxpayers, government agencies, funders, partners and each stakeholder have their own set of goals, perspectives or interests when associating with an

NPO or public administration. The different interests imply in a different performance assessment model required or a set of specific measures to monitor and report (Amado & Santos, 2009; Conaty, 2012). So, transforming community interests into performance indicators is highly encouraged.

A characteristic of an NPO and public administration is pursuing their non-financial mission once the financial value creation does not represent the organizational purpose and the performance measurement is focused in outputs, outcomes and impact (Cordery & Sinclair, 2013). Demonstrating results is a complex task for these organizations because it involves various circumstances and the accomplishment of social mission can be dependent on external variables. The performance measures definition should have a mission-oriented nature and it implies in a multidimensional analysis considering long-term impact and the social value creation.

Stakeholders want to know if their investments are being well-invested so the demonstration of achievement and the social mission reflected in the value creation are important ways to create legitimacy. However, some NPOs and public administrations measure their performance only to address external and legal requirements. If the NPO or public administration do not provide information about the mission achieved, the use of only financial or efficiency measures can depreciate the real social value creation considering intangible aspects, e.g., poverty reduction, improvement in education, improvement of the quality of life. For that, a performance measurement system with holistic perspective could contribute for the assessment of intangible results and performance management. According to Jones (2014, p. 120) “organization collect a variety of data to funders but fail to allot time to synthesize and discuss the data they collect”. The performance measurement without a mission-oriented design misses a lot of data that would contribute to reaching credibility and trust, and get new funders and donors. In this way, the social mission definition is crucial. The more abstract and general the mission definitions are, the higher the complexity in elaborating the measures, and related goals.

Accountability

Both NPOs and public administrations point the practice of the accountability and that the PMS provide information and contribute to attend requirements from external stakeholders. Connolly & Kelly (2011, p. 234) argue that accountability can be provided in three different perspectives: legal (legal obligations for financial or performance reports for public administration, or

fundings), constructive (for increase the legitimacy and share the mission pursue with stakeholders), and voluntary (when the organization provide reports voluntarily for the stakeholders). In this sense, communicate organizational data to external stakeholders can accomplish a legal obligation but also, increase the credibility and trust of community and sponsors or donors both for public administration and for NPO. Ebinger, Grohs & Reiter (2011) studied decentralization strategies and their impact on local government performance in Germany, France and England. They describe six performance dimensions related to legitimacy and equity, and in this context, the accountability is demonstrated. So, the democratic control and accountability present indicators related to formal gain in political competences, the factual gain in political leeway, the inclusion of organized interests, the inclusion of citizens and transparency. In NPO context, accountability can be seen as a result of professionalization and helps to overwhelm possible dubiousness about their efficiency by stakeholders (Ebrahim & Rangan, 2014; Moxham, 2014).

It is worth mentioning that some funders and donors recognize that information about social aspects is more important than financial data only, so accountability is an alternative to provide legal reports and measures that enhance legitimacy the organization (Cordery & Sinclair, 2013; Moxham, 2014). Information about clients, efficiency and evaluation are relevant to improve the organizational culture. Externally, communication links NPO, public sector, collaborative organizations and stakeholders with information to dissemination and exchange (Dobmeyer, Woodward & Olson, 2002). Methods and procedures can be developed to combine performance measurement and the accountability. Some organizations have to readjust their system to execute devices to accomplish internal controls and legal obligations. Besides that, NPOs can practice the constructive and voluntary accountability through the reports to bring new funding and maintain current funders. (Connolly & Kelly, 2011)

Legitimacy

Although none organization in this study use the PMS to support the process of legitimization, the literature points how its use can be helpful as a mechanism to increase the legitimacy, contributing to organizational promotion, and to attracting new funders and investments, or even to maintain the credibility and confidence of the population. Since these organizations recognize the importance of legitimacy and how a PMS can contribute to that, improve its characteristics can be an important feature to be regarded in the design of the system. Besides

that, the legitimacy is seen as a perception by stakeholders as explain by Shuman (1995), legitimacy can be related to organization promotion too. Performance reporting, financial reporting, accountability (voluntary or not) and demonstration of achievement can contribute to organization promotion. Many organizations use these reporting and results of social impact like a strategy to attract more funders, new donors, volunteers or maintain the actuals, to assure credibility and to provide legitimacy to stakeholders (Clark & Brennan, 2012; Cordery & Sinclair, 2013; Arvidson & Lyon, 2014). Even public organizations can seek legitimacy to improve and strengthen their opinion by citizens. In this sense, performance reporting can contribute to organizational promotion more than financial reporting (Cordery & Sinclair, 2013).

In a study about public sector collaboration in Malaysia, Ramadass, Sambasivan & Xavier (2017) explain that the community is very interested that these organizations be accountable and transparent which influence the public administrations and agencies to work together to provide public reports and outcomes. Conrad & Guven (2012) studied the national health service in the United Kingdom and showed that external agents might impose a PMS for the public administration. A new PMS was implemented which allowed the Department of Health to communicate legitimacy and to provide information about their performance. According to their case study, the English regulatory body imposed a PMS on their hospitals and some agents evaluated the process to design and implement it.

According to Crucke & Decramer (2016) and Moxham (2014), in some NPOs, the PMS is used with the sole purpose to legitimize their activities. Conrad & Guven (2012) emphasize that political interests may compromise the definition of performance measurement to achieve an expected level of legitimacy in public administrations, leading to inappropriate targets or consequences that may difficult the efficiency and effectiveness of management and the public service. So, with the goal to legitimize operations through reports and performance indicators, the PMS should be designed for this purpose.

Volunteering

Although not widely studied, volunteering is present in both NPO and public administration. None organization studied in this research provide a PMS that evaluate the volunteers. However, the literature shows that they have different expectations when working voluntarily, and although not be paid, motivations and benefits can contribute to attract and value them.

Human resources to NPO can be composed by employees and volunteers. Not all NPOs or public sectors have volunteers as human resources, but some of them such as welfare services and humanitarian aid heavily rely on volunteers. They can be an attractive alternative to accomplishing some tasks, especially when the availability of resources is limited and financial restrictions to payments are imposed. Because of this, organization needs to know how manage their characteristics about motivation, available activities and life satisfactions from the recruitment to the evaluation and rewards (Cnaan & Cascio, 1998; Duque-Zuluaga & Schneider, 2008).

According to Chiang and Birtch (2012, p. 540), formally the reward can be fixed, as the salaries, and variable as “incentives contingent upon individual, group, or organizational performance” which means also include the intangible aspects including “recognition, alternate work arrangements, and training and development opportunities.” The study of Cnaan & Cascio (1998) about performance and commitment to volunteers in human service organizations reports that people offer their service as a volunteer with the desire to help and do not involve themselves with business concerns. They listed 10 differences between volunteers and employees that help understand the characteristics of volunteering. The main differences are related to motivation, commitment, hours of work, benefits, and organizational characteristics.

Although the different expectations, volunteers should be included in performance measurement. In this way, volunteering is a strategical tool for organizational management in the PMS context of an NPO and the public administration.

Social services can be labor-intensive and this can interfere as to employees as volunteer motivation. In this context, monetizing volunteers can be complex and a barrier to maintain them (Cordery & Sinclair, 2013). As employees’ participation in organizational process development, volunteers can be included equally (Duque-Zuluaga & Schneider, 2008; Taylor & Taylor, 2014).

Involvement and influence of stakeholders

The studied organizations show that the involvement of stakeholders and their requirements can affect the performance measurement and management in different ways as governmental and political issues, legal obligations or contractual aspects.

It is hard to meet accountability and performance measurement requirements for a large number of stakeholders of varied characteristics and with different interests (Taylor & Taylor, 2014; Pirozzi & Ferulano, 2016). So, it is possible to analyze the stakeholders by their influence and involvement in NPO context.

As a business model, the stakeholders of an NPO present different levels of influence into organizational management and routine, e.g. by regulatory agencies, and demands. In public organizations, the range of stakeholders, internal and external, and the necessity to provide equity outcomes among clients, users or beneficiaries are barriers to efficiency and effectiveness of NPO operations (Karwan & Markland, 2006). For some NPOs, government influences planning through exerting pressure on NPOs to perform and create social impact using their limited resources (Amado & Santos, 2009). Also, there are challenges related to political differences, legal problems, reduction of tax support, public concerns, and other issues that influence organizational planning and activities (Kong, 2010; Conaty, 2012; Mehrotra & Verma, 2015).

Political and governmental interests, funders, regulatory agencies, public sector commissioners, and legislative bodies may influence the measurement criteria both positively and negatively, requiring different targets or some forms of social impact measurement (Conrad & Guven, 2012; Cordery & Sinclair, 2013; Arvidson & Lyon, 2014).

The difference between stakeholders' influence and involvement demands a distinctive performance assessment framework and set of performance measures to be monitored and reported (Amado & Santos, 2009; Conaty, 2012; Cordery & Sinclair, 2013). There is increasing pressure for NPO and public administration to use practical management tools (Grigoroudis, Orfanoudaki & Zopounidis, 2012), but sometimes those organizations, especially the third sector, have demands imposed by funders, not by themselves (Cordery & Sinclair, 2013). Political and governmental interests, funders, regulatory agencies, public sector commissioners, and legislative bodies may influence the measurement criteria both positively and negatively, requiring different targets or some forms of social impact measurement (Conrad & Guven, 2012; Cordery & Sinclair, 2013; Arvidson & Lyon, 2014).

Taylor & Taylor (2014) present a research agenda with a stakeholder perspective focus to design a PMS for the third sector. According to them, this approach can contribute to value creation for stakeholders already in the strategy definition. So, Taylor & Taylor (2014, p.1382) argue that:

While no existing models or frameworks appeared to align in full with the distinctive characteristics of Third Sector performance measurement, one which adopted a process approach and a stakeholder perspective could be most appropriate.

According to Amado & Santos (2009), more research has to be conducted about performance considering stakeholders' expectations. As a framework for performance measurement, the Performance Prism was developed with the intention to adopt a stakeholder-oriented perspective and helps comprehend stakeholders' characteristics regarding their perspective and influence to the organization. The framework "makes an important distinction between stakeholder satisfaction – what the stakeholders want of the organization – and stakeholder contribution – what the stakeholders contribute to the organization" (Neely, Kennerley, & Adams, 2007, p. 152). Although the Performance Prism is considered useful to NPOs, Micheli & Kennerley (2005) point limited application of the Performance Prism in these organizations.

Financial sustainability

All organizations in this study manage their finances from alternative sources of income. However, almost all of them there is no way to control them individually and get performance indicators according to investments, donations or other sources which could help in the accountability and legitimacy process. Also, the management of their finances is very important for their financial sustainability which can be very influenced by external variables as political issues.

Financial sustainability through alternative sources of income is a challenging and critical dimension to be managed. Public administration but especially the NPO usually combine alternative sources of income like donations, subsidies, volunteering, public funders, philanthropic funders and, sometimes when is legally possible, sales of products or services (Cordery and Sinclair, 2013; Taylor and Taylor, 2014; Arena, Azzone and Bengo, 2015).

NPO characteristics include legal financial restrictions so they depend of donors, findings or subsidies. This dependence of resources can determine the organizational survival. Resources help an organization establish capacity that delivers public services (Dobmeyer, Woodward & Olson, 2002), so governmental divergences and tax support impact directly any NPO (Kong, 2010b).

Some organizations have collaborative partnership with companies because of their goal to reach social responsibility improvement (Kong, 2010b). Because of legislation, resource providers don't have financial profit (Cordery & Sinclair, 2013). These financial characteristics involve a good strategy from NPO to obtaining resources (Duque-Zuluaga & Schneider, 2008). This dependence on alternative sources of income has increased the interest of studies about performance measurement and management (Cordery & Sinclair, 2013). Funders, donors, investors, governments and regulatory bodies are concerned about how financial resources are used and managed by NPOs, so the PMS should be designed to include information this information for the stakeholders, delivering consistent reports to them.

Short and long-term planning

The NPOs and public administrations work with critical issues related to the short and long-term. The planning can be affected by political or budget problems, and the measurement of long-term aspects can be complex. NPO and public administration planning is affected for many variables including availability and limitation of resources (human, financial and materials), alternative sources of income, stakeholders interests, political interests and social demands (Kong, 2010; McEwen, Shoesmith & Allen, 2010; Arena, Azzone & Bengo, 2015; Mehrotra & Verma, 2015).

Hence in general long-term planning is not possible, mainly for public administration because of the political issues. Short-term planning is due from time-limited grants and subsidies, contracts to investments, uncertainty and insecurity donations from people and companies (Taylor & Taylor, 2014). This is a challenge to manage because in many cases the social impact can be seen only long-term (Moxham, 2009; Kong, 2010b; Valentinov, 2011).

By the difficulty to match planning and stakeholders' requirements to reports, Jung (2011) indicates that many organizational goals are ambiguous and argues that they need be clear and well-defined, including the difference between annual and long-term goals. Besides that, complex terminology, intangible factors, assessment of long-term benefits, and definition of expected impact are difficulties encountered by an NPO to define its measurement criteria (Moxham, 2009; Cordery & Sinclair, 2013). Also, the number of goals is a factor that can harm the performance measurement process if they are so numerous that they imply ambiguity and difficulty to establish priorities among them (Jung, 2011; Taylor & Taylor, 2014). In this

perspective, PMSs should contribute to organizational management including more structured planning activities.

Fairness

None organization in this study has an obligation to work with the fairness sense but five of them indicate awareness to do that. Both for NPO and public administration was noted a fairness concern but none performance indicator is developed to its validated in measurable terms.

Fairness or inter-local equity is a challenge to NPO, especially to public sector. Inter-local equity means to provide equitable social results and homogenous service level to beneficiaries or community throughout the same community, area, state or country. Equity in a public administration can be defined by the objective to provide regular services independently of the group, race, gender or other social characteristic and to provide equal access to services by a community (Amado & Santos, 2009). Inter-local equity means to provide equitable social results and homogenous service level to beneficiaries throughout the same community, area, state or country. In the social enterprise context, Arena, Azzone & Bengo (2015) indicate the fairness as a capacity of the organization to ensure products or services for all levels of society. Measurement of inter-local equity horizontally involves “the ability to develop comprehensive and integrated policy solutions on the local level” (Ebinger et al., 2011, p. 562). Organizational capacity is necessary to produce outcomes and to maintain high levels of efficiency and effectiveness (Karwan & Markland, 2006; Ebinger, Grohs & Reiter, 2011).

Efficiency and effectiveness

While the efficiency index is very well conducted by the organizations, the effectiveness is not evaluated for the organizations in this study. Indeed, the definition of measures of efficiency and effectiveness in the social context of the NPOs and public administrations can be hard. Intangible measures and results are difficult issues to be managed and reported by them. Moreover, the use of PMS can be hard if its use is not very well defined and the people, sometimes, may look at as a competition or a way to assess personal aspects. Despite this, all organizations in this study have a PMS that contribute to monitoring and development of performance reports.

How to measure performance in an NPO is not an easily answered question because the criteria are not defined in the literature. Also, usually the NPOs and some public administrations do not have financial resources to make information technology investments nor to realize data collection and analysis (Arena, Azzone & Bengo, 2015). Although the increase the pressure to report the performance outcomes by stakeholders (Moxham, 2009), PMS evolution is not able to catch all dimensions about performance considering their dynamics and multiple goals. For that, is necessary understanding the social value for then become them in measurable terms (Arena, Azzone & Bengo, 2015). Besides that, terminology confusing, intangible factors, assessing long-term benefits and expected impact influenced by stakeholders are difficulties for these organizations to define measurement criteria (Moxham, 2009; Cordery & Sinclair, 2013).

Efficiency for those organizations is a dimension that translates cost-efficiency of service production (Ebinger, Grohs & Reiter, 2011) and refers to operations, resources, and the delivery of outcomes and benefits to public services (Lane & Casile, 2011). For the public administration, the concern about efficiency is real and there is a pressure for some of them provide better reports. “Now public sector organizations are expected to be managed more like businesses, to be customer oriented, more focussed on outputs and outcomes rather than inputs, and to become more efficient and effective” (Sillanpää, 2013, p. 475).

Effectiveness in an NPO and public administration refers to the achievement of established objectives (Amado & Santos, 2009), but some organizations have difficulties to connect effectiveness measures to their PMSs and performance indicators (Moxham, 2009) and, in this way, to promote organizational improvement. Measuring the effectiveness of operations can be a particular challenge to NPO and public administration if considering the variety of stakeholders’ interests and requirements, especially to public sector activities (Karwan & Markland, 2006).

Kroeger & Weber (2014) argues that social value creation is not so well understood because of its intangibility. In the context of the social enterprise, for example, profit maximization is not a priority. When it is reached, however, all profit is reversed or reinvested in social goals (Kong, 2010b). Social value creation is more important than economic profit and doesn't express a profit goal, but social impact (Perrini, Vurro and Costanzo, 2010). Sometimes the relationship between income streams and financial results may be non-existent or does not reflect good levels of profit (Lane and Casile, 2011), but this does not mean that social impact is not high.

In a study of public welfare service, Sillanpää (2013, p. 476) explains that while the social value concept is related to intangible results in a general perspective, e.g. the local economic gain, social impact measurement has the challenge to “comprehensively capture various impacts at different levels (e.g. impacts on the quality of life at individual level and on the costs at service system level)”. Traditionally, measurement of social impact is conducted by economic evaluations. As Arvidson & Lyon (2014, p. 881) put it, “the selection of suitable indicators is a particular challenge for those organizations that are using evaluation frameworks that monetize social impact and use a cost-benefit analysis approach.”

However, the measurement of social impact is a complex task because it involves intangible results, community interests, and includes interpretation about unmeasured and unquantifiable dimensions that represent social value (Lane & Casile, 2011). Sometimes the relationship between services and income stream may be non-existent or yet don't reflect good levels of profit if compared with outputs levels (Lane & Casile, 2011) but this not means that the social impact was not high. Measurement way and how to quantify social aspects are a critical discussion both to NPOs and public administrations and have a direct impact on governance, organizational culture, public dialogue, social impact, reports, organizational and individual assessment (Drews, 2010).

As involve intangible results and stakeholders interests, also accountability and legitimacy (Moxham, 2009; Arena, Azzone & Bengo, 2015), those organizations can use a PMS to try proving high performance, social value and trust (Micheli & Kennerley, 2005; Conaty, 2012).

PMS have to be integrated to routines activities of organization. Performance data and reporting have to be synchronized among organizational levels. Management reporting or performance reporting, for example, is required to transparency about resources, activities and governance by stakeholders (Ebrahim & Rangan, 2014), also to auditor and evaluators, specially by regulatory agencies, donors and community (Moxham, 2009). Internally, these same reports can contributes to organizational evaluation, operational control and resources management (Dobmeyer, Woodward & Olson, 2002).

Strategic management control

The performance measurement is an essential step for the performance management and will support the planning, control, and making-decision. Also, the literature points that the use of a PMS can be a strategic tool to improve the learning and continuous improvement. However,

the organizations in this study do not use the PMS for this purpose properly. Only two NPOs use the system systematically but it is not available for all levels of the organization, and just in one of them the system supports the learning and continuous improvement efficiently.

Strategic management control refers to the organizational management involving the ability to learning and continuous improvement and, in this way, the PMS can be a tool for reach it. As Crucke & Decramer (2016, p. 3) explain “a performance measurement tool can be used as an internal management instrument, enabling organizations to assess their performance and support internal decision-making”. Noordin, Haron & Kassim (2017, p. 925) argues that “an effective PMS serves as a platform for organizations not just to discharge their accountability but also to facilitate their management and internal control activities”. Nguyen, Szkudlarek & Seymour (2015) also explain that a PMS can support the learning and evaluation of the strategy to achieve the mission.

Performance measures can be used to manage and promote continuous improvement in any organization. Their measurement is related to activities developed by individuals and they should be designed incorporating characteristics to motivate learning and continuous improvement. Van Overmeeren et al. (2010) studied housing associations and their performance assessments and identified that one of the perspectives of the performance assessment frameworks in this organizations were learning and organizational improvement. Also, Gomes, Yasin, & Lisboa (2004, p. 524) argues:

The future of performance measurement, measures and systems must be viewed from a continuous improvement perspective. In this context, the PMS must be viewed as a collection of procedures, techniques, processes, and more importantly, people working together toward continuously improving the multifacets of manufacturing performance and measurement.

In addition to reporting performance and social impact to external stakeholders, a PMS can be used as an internal report to increase performance by organizational learning (Cordery & Sinclair, 2013). In this way, performance measures are a driver to continuous improvement and should be considered in the PMS design. According to Bond (1999, p. 1319) “performance measures (PMs) provide a mechanism for relating product or process improvement policies developed by senior management to action at a local organisational level.”

4.4 Lessons learned

Table 24 summarizes the lessons learned through the case study. First, the outputs suggest that the factors can play in different approaches. Fragments of interview or data collection support the understanding the outputs. Second, the outputs contribute to the better understanding about the factors, and so concerns and future research are indicated.

Table 24: Lessons learned

(a)

Group	Purpose
Factor	Social approach
Outputs	Seems a complex task measure intangible results as the social value creation and social impact in NPO and public administration. In another hand, the definition of a social mission and vision is a well-established assignment. The following citations help this understanding about intangibility in the social aspects: US.NPO.1 says: "When you look to the micro level I would say that is really about our sponsors coming back and work with us. I think this is the huge indicator." CA.PA.1 says: "We see the number of fires going down, we see the losses going down, we see the injuries going down. So, we are making progress. Are we being as effectiveness we could be? We hope so. And we can compare with other cities. That is probably the best how to comparing how we are doing with other cities, you know, our losses, our number of incidents, our, their equal to or lower than, the cities can compare with. So, comparability is probably the best indicator."
Concerns and future research	Few studies are being attended to define performance measures, especially for intangible aspects related to NPOs and public administration. Berenguer (2015), presents some metrics for the performance measurement in NPO by three perspectives: input metrics (costs, time, and donations), output metrics (effectiveness, equity, equality, and social welfare), and efficiency metrics (efficiency, flexibility, and sustainability).

(b)

Group	Stakeholders
Factor	Accountability
Outputs	The practice of the accountability is very well-established in the studied organizations. The PMS provide information and contribute to attend requirements from external stakeholders but could be developed more specialized tools to support this process that appears too manual. Examples can cited as the US.PA.1 that some specific kind of data is reported to an external stakeholder and then, this stakeholder uses this information to provide grants for the department. The BR.PA.1 cites that all their purchases and activities are reported on website of the state government according to the transparency obligations. Also, their own website provides some financial information.
Concerns and future research	How to transform performance measures into data to accountability reports should be more studied. Studies as developed by van Overmeeren et al., (2010) and Noordin et al, (2017) point that the accountability can present different perspectives and obligations by cultural or legal aspects.

(c)

Group	Stakeholders
Factor	Legitimacy
Outputs	None organization in this study use the PMS to support the process of legitimization. However, they recognize the importance of the legitimacy and that the PMS could help in this way. For the US.NPO.1, for example, although there is no intention to use the performance metrics to increase the legitimacy, the results of the organization and their credibility before strategic stakeholders provide legitimacy.
Concerns and future research	Legitimacy is a very significant issue to NPOs and public administration regarding attract or maintain investments, and reach the trust of the public as a reliable organization. Even if the legitimacy is not the primary goal to use a PMS, some tactics for use the performance measures could be designed to support the process of the legitimization, trust, and credibility.

(d)

Group	Stakeholders
Factor	Volunteering
Outputs	None organization presents a concern to measure the performance of the volunteers. The CA.PA.1 has volunteers working with some particular activities. They do not have the same training as the employees, and there is not any kind of performance indicator to them. Also, the BR.NPO.1 works with a lot of volunteers, but legal aspects are indicated as the main obstacle to doing that.
Concerns and future research	Measure the performance of volunteers can support the process of rewards and monitoring. How to reward and improve their performance is a critical issue and studies about this concern, especially in public administration should be developed. Also, legally aspects should be considered in the design of PMS.

(e)

Group	Stakeholders
Factor	Involvement and influence of stakeholders
Outputs	Governmental and political issues, legal obligations and contractual aspects were the most cited issues by the studied organizations. For US.NPO.1 the lack of information can be a barrier to the communication with some stakeholders and to the legitimacy. So, in this way, some stakeholder can influence indirectly the organization to increase their way to disseminate reports or some data. For the BR.NPO.2 the stakeholders influence a lot in the management process as explained: "because they validate and define the whole strategic planning of the indicators [...]. If some stakeholders want to know about a specific metric, he can influence what is measured and can require periodically in the monthly meetings" (<i>translated from Portuguese</i>).
Concerns and future research	How to manage all of stakeholders through a PMM is a critical question in the NPO and public administration context. Differences in the culture aspects in what and how measure need to be investigated as cited by Conaty, (2012).

(f)

Group	Management
Factor	Financial sustainability
Outputs	Almost all of the studied organizations there is no way to control the sources of income individually. Because of the nature of the public organizations related to safety, none needs to manage their sources with the risk of no future investments but the amount of money can vary by political issues. The CA.PA.1 receives the most significant amount of money from the city. Usually, the others sources of income have specific goals. The BR.PA.1 has legal steps to receive resources from other sources behind the state funds but once the money is legally accepted, there is no distinction for the performance measurement.
Concerns and future research	Financial sustainability is a critical issue to public administration and especially to NPOs because of the concern with attracting and maintain funds, donations or investments. In this way, design a PMS that can fit tools to manage the different sources of income, support the short and long-term planning and control, and also produce performance measures according to each investment/source may be an interesting tool for these organizations.

(g)

Group	Management
Factor	Short and long-term planning
Outputs	All the studied organizations work with critical issues related to the short and long-term. The BR.NPO.1 works with projects that can vary between 4 months to 2 years. The BR.NPO.2 reviews the strategic planning quarterly, and the strategic goals are reviewed annually. The CA.PA.1 plans for long-term which is considered around 5 years. However, there is not a long-term evaluation in terms of social impact and the political and budget issues can change the planning.
Concerns and future research	A critical feature in a PMS for these organizations could be the short and long-term aspect. This setting would support the planning and control improving the management and making-decision.

(h)

Group	Management
Factor	Fairness
Outputs	<p>None organization in this study has an obligation to work with the fairness sense but they indicate awareness about it.</p> <p>The most expressive example is from BR.NPO.1 where they have the concern about applying their projects equally between man and women. "We try to balance in terms of the gender. In a project, we try to reach the 50/50, but not happens yet, but we try. We work to prepare the people for the jobs, so we try to give the opportunity to women. The industry lacks women for their insights and making-decision approach. For having more women in management level, we need more women working in the operational. So, we look for the social aspect too" (<i>translated from Portuguese</i>).</p> <p>For the BR.PA.1 the fairness is perceptive in the planning of activities. They plan their actions based on demand, so who needs more, will get more help.</p>
Concerns and future research	The fairness is not very well investigated in the studies of the PMS for NPOs and public administration. Studies about this characteristic could help the organization for the legitimacy, accountability and making-decision.

(i)

Group	Management
Factor	Efficiency and effectiveness
Outputs	<p>Although the efficiency be a consolidate measure, the effectiveness is not so well-established in these organizations.</p> <p>The CA.PA.1 has efficiency indexes as 'total fire cost per staffed in-service vehicle hour' and 'fire operating cost per vehicle run'. They use the efficiency indicators for management and benchmarking process.</p> <p>For the effectiveness aspects, an intangible awareness is present: "Sort of things we do we can see the impact but a lot of things we do, we just take on face; we know we are doing the right things and we see positive results getting better. [...] Heart attack survival is a good one. We know when that happens, someone has a heart attack probably will gonna die in seven or eight minutes. We know because our response getting fast with the defibrillator we save lives. It is very intangible; it is not big numbers but in the end of the turn we can say we save who would die if we hadn't arrived. So, that is one of the areas is very intangible. The people is very exciting to 'let's put all our value on that, what is value of human life?'. Well, we say 'forty of them... the value of human is one million dollars... and we save 40 million dollars'...".</p>
Concerns and future research	The practice of the effectiveness measurement could be more investigated and its aspects of how to measure better detailed in the literature.

(j)

Group	Management
Factor	Strategic management control
Outputs	<p>The strategic management control is not very well-established in the studied organizations. Aspects related to learning and continuous improvement is not applied by the management.</p> <p>For the US.NPO.1 the use of performance measurement supports the learning and continuous improvement individually but not for everybody in the organization. Only those involved in each area of action being researchers or the like who have annual evaluations.</p> <p>In the BR.NPO.1 the use of the performance measures supports the continuous improvement and the individual evaluations, including the management of the rewards of the employees.</p>
Concerns and future research	Aspects related to the strategic management control is an essential issue in private organizations. As the importance of performance measurement aspects is growing to be applied in NPO and public administration, studies about this could be better investigated, even if their use with this purpose be a secondary goal. Studies of Ebrahim and Rangan, (2014); Nguyen, Szkuclarek and Seymour, (2015) and Crucke and Decramer, (2016) show that this concern is better consolidated in the social enterprises.

This variability can be a result of the size of the organization, efforts to measure the performance and provide human and financial resources to that, the awareness of the importance to use the PMS as a tool and essential aspects as the accountability, and as well to managerial aspects as

the strategic management control that contributes to the organizational climate and to rewards for employees and volunteers.

4.5 PMS implementation and operationalization

This section shows the results of a study about the PMS implementation and operationalization and presents two parts. The first one is a study of a PMS implementation and operationalization by the enterprise engineering guidelines. With this output, a review of the PMS approach is examined through the design factors and the semantic is updated to attend NPO and public administration peculiarities and also, some adaptations in the process are made to increase the usability for those organizations.

4.4.1 Analysis by enterprise engineering guidelines

Table 25 shows evidences of the association between the enterprise engineering guidelines listed in Table 5 and the PMS implementation and operationalization process objectives listed in

Table 9. Evidences were found for guidelines #1, #3, #4, #6, #7, #8, #10, #12.

Table 25: Evidences of the association between enterprise engineering guidelines and PMS operationalization and implementation process objectives

(a)

Guidelines	Phase	Part	Objectives
#1. Processes must be aligned with the organizational context (for example, organizational goals, organizational values, organizational culture, organizational performance, technology and people).	Phase 1	Part 2: What are the organizational objectives?	Objective 2.1: reach a balanced set of organizational objectives for each customer-product group. Objective 2.2: identify customer needs for each customer-product group, starting with the most important group. Objective 2.3: identify stakeholders needs for each customer-product group. Objective 2.4: identify organizational objectives. Objective 2.5: verify a balanced set of objectives that has been developed. Objective 2.6: set targets and verify strategies. Objective 2.8: define responsibilities to verify or develop performance measurements for each organizational objective.

		Part 4: Were the right measures chosen?	Objective 4.3: verify whether there are barriers to the implementation.
	Phase 2	Part 9: Were the right measures chosen for this conductor?	Objective 9.1: verify whether all the organizational team members agree with the measures they will use. Objective 9.3: verify whether there are any barriers to the implementation.

(b)

Guidelines	Phase	Part	Objectives
#3. Processes must be clearly defined (for example, objectives, roles, responsibilities, capabilities, performance, information and interfaces).	Phase 1	Part 2: What are the organizational objectives?	Objective 2.8: define responsibilities to verify or develop performance measures for each organizational objective.
		Part 3: Have the organizational objectives been reached?	Objective 3.1: develop performance measures for each organizational objective and fill in a register form with performance measures for each organizational objective.
	Phase 2	Part 7: Which are the most important performance conductors?	Objective 7.1: identify which conductors are fundamental so that suitable performance measures can be developed. Objective 7.4: set responsibilities for the performance measures for each key-activity.
		Part 9: Were the right measures chosen for this conductor?	Objective 9.1: verify whether all organizational team members agree with the measures they will use.

(c)

Guidelines	Phase	Part	Objectives
#4. Resource availability in a process must be aligned with the process expected performance.	Phase 2	Part 8: How can one know whether these conductors are working?	Objective 8.1: identify a performance measure for each key-conductor. Objective 8.2: fill in a register form for each key-activity performance measure.
		Part 10: Use these measures to leverage organizational performance	Objective 10.1: set a schedule for future performance reviews. Objective 10.2: set a mechanism for the performance measurement system review. Objective 10.3: conduct performance reviews successfully.

(d)

Guidelines	Phase	Part	Objectives
#6. Specifications for the process interface channels must be defined.	Phase 1	Part 2: What are the organizational objectives?	Objective 2.2: identify customers' needs for each customer-product group, starting with the most important group. Objective 2.3: identify stakeholders needs for each customer-product group.
	Phase 2	Part 6: What can be done to leverage performance in relation to the objectives?	Objective 6.1: identify performance conductors. Objective 6.2: fill in the "polar fishbone" graph. Objective 6.3: summarize the "polar fishbone" graph.

(e)

Guidelines	Phase	Part	Objectives
#7. Models of process and their elements (for example, objectives, roles, responsibilities, capabilities, performance, information and interfaces) must be shared	Phase 1	Part 4: Were the right measures chosen?	Objective 4.1: verify whether everybody agrees with all the high level performance measures.

(f)

Guidelines	Phase	Part	Objectives
#8. Processes must explicitly support the management and control (for example, synchronization, decision making, assignment and coordination) within a process and with other processes.	Phase 1	Part 4: Were the right measures chosen?	Objective 4.2: establish a process to follow the progress with the implementation of each measure.
	Phase 2	Part 7: Which are the most important performance conductors?	Objective 7.2: identify key-activities Objective 7.3: evaluate key-activities (main)

(g)

Guidelines	Phase	Part	Objectives
#10. Processes must incorporate mechanisms for change, improvement detection and management.	Phase 1	Part 2: What are the organizational objectives?	Objective 2.7: evaluate contributions.
		Part 5: Using the measures to manage the business	Objective 5.1: set a schedule for future performance reviews. Objective 5.2: set a mechanism for the performance measurement system review. Objective 5.3: conduct performance reviews successfully.
	Phase 2	Part 9: Were the right measures chosen for this conductor?	Objective 9.2: establish a process to follow the progress with the implementation of each measure.
		Part 10: Use these measures to leverage organizational performance	Objective 10.1: set a schedule for future performance reviews. Objective 10.2: set a mechanism for the performance measurement system review. Objective 10.3: conduct performance reviews successfully

(h)

Guidelines	Phase	Part	Objectives
#12. Information regarding the process and organization performance must be chosen.	Phase 1	Part 2: What are the organizational objectives?	Objective 2.8: define responsibilities to verify or develop performance measures for each organizational objective.
		Part 3: Have the organizational objectives been reached?	Objective 3.1: develop performance measures for each organizational objective and fill in a register form of the performance measures for each organizational objective.
		Part 5: Using the measures to manage the business	Objective 5.1: set a schedule for future performance reviews. Objective 5.2: set a mechanism for the performance measurement system review. Objective 5.3: conduct performance reviews successfully.
	Phase 2	Part 6: What can be done to leverage performance in relation to the objectives?	Objective 6.1: identify performance conductors. Objective 6.2: fill the "polar fishbone" graph. Objective 6.3: summarize the "polar fishbone" graph.
		Part 10: Use these measures to leverage organizational performance	Objective 10.1: set a schedule for future performance reviews. Objective 10.2: set a mechanism for the performance measurement system review. Objective 10.3: conduct performance reviews successfully.

For relations between enterprise engineering guidelines and PMS design process objectives, guidelines #2, #5, #9, and #11 are not found. So, next section will propose new phases and objectives with the goal of recommending a PMS process approach with all guidelines present.

Guideline 2: People involved in a process must participate in its design

According to Deschamps *et al.* (2013, p.812), “a recurring point in works suggesting how to proceed in the modeling of enterprise systems, (...) is the involvement of people as a principle in most excellence models and (...) the engagement of people in enterprise transformation initiatives”. According to Gomes *et al.* (2004), the organizational effort to measure performance must be approached as a complete system, mainly because it affects individuals’ motivation. It is necessary to comprehend each individual as a fundamental part for organizational development and hence identify the ideal system for each organization.

Nudurupati *et al.*, (2011) observe that the measure of success of a PMS is in the change in behavior that it generates towards a progressive performance improvement and organizational culture change. The use of a PMS might be followed by positive behavior by the people who use it, showing proactivity and commitment to continuous improvement, but can also be followed by resistance and bad use of information.

The study of Taylor & Taylor (2014) present a research agenda for PMSs design for the third sector based on a stakeholders’ perspective. They argue that PMSs should be developed to include learning and continuous improvement. In this way, the participation of employees is essential to minimize the resistance to use a PMS, because very often staff tend to resist the introduction of a new or complex software, as observed by Cordery & Sinclair (2013) and Arvidson & Lyon (2014). Also, stakeholders usually have their own requirements for performance measurement, and organizations in the third sector, public sector, social enterprises and the like, for instance, tend to mold their systems to what is acceptable by them in relation to accountability and legitimacy practices (Karwan & Markland, 2006; Amado & Santos, 2009; Arvidson and Lyon, 2014, Um, 2017).

Arena *et al.* (2015) and Kinder (2012) suggest that the process for designing or re-designing a PMS could be triggered by the intention to improve technologically, to provide innovation or to increase usability, but in many cases, because of the lack of positive evidence, there is no commitment to provide adequate or sufficient human and financial resources for system design, what can also impact on people’s resistance.

In the studied process, there are moments that require the participation of people. Phase 2 in the PMS implementation and operationalization process under study includes the participation of people involved in the use and review of performance measures. In the end, the organizational objectives must be explained to these people, as well as how progress is being measured. In Phase 1, Objective 4.1, people involved must be consulted to determine whether they agree or not with the proposed measures. However, guideline 2 proposes a broader and more effective participation, considering people involvement from system conception, which should start since the beginning of Phase 1. The participation of employees from earlier stages enhances competences and helps them grow and develop as members of the organization.

In this sense, it is necessary to identify a more effective involvement of participants, and somehow, the ‘facilitator’ could be a bridge between the organizational objectives and everybody’s vision in the organization, without, however, hindering participation, but encouraging collective effort, creating cohesion, improving morale and administering interpersonal conflicts.

Guideline 5: Information structure must be based on open standards to ensure interoperability with different systems

Interoperability has been shown as one of the main aspects linked to enterprise engineering, with a vital role in any business considering the advance of cyber-physical systems and other technologies. According to Panetto et al. (2016, p. 47), “although industry has responded to the interoperability challenges with the development of collaboration interfaces and integration mechanisms, such development may become unsustainable with the rapid growth in the variety of system architectures”. Interoperability guarantees that all parts involved share information through the same structure, providing minimization of interpretation errors and facilitating communication and learning. Chen & Vernadat (2004, p. 249) state that “from a software engineering point of view, interoperability means that cooperating pieces of software can easily work together without any interfacing effort. [...] More broadly speaking, achieving interoperability implies defining between two cooperating entities (be they software applications, processes, organization entities, ...) a standard way of sharing their capabilities and needed information”. As summarized by Panetto (2007, p. 728) “interoperability is the ability of different types of computers, networks, operating systems, and applications to work together effectively, without prior communication, in order to exchange information in a useful

and meaningful manner”. So, when the system is interoperable, it means that the system can obtain and share data efficiently.

However, to leverage interoperability, it is necessary that open pattern systems are used, as they are more accessible ones. According to Deschamps *et al.* (2013, p. 812), “the use of open standards is a strong catalyst to interoperability, as it ensures that both parties involved in an exchange will have the same information structure, facilitating it. Enterprise reference models are open-standards *per se* and most of them have information as one of their standardized elements”. Some barriers might appear that hamper interoperability, such as those regarding the incompatibility of systems (platforms, architectures, infrastructure). Organizational particularities also might present barriers, as for example, when the company has confidential information that might alter the quality or veracity of available information. Therefore, as observed by Whitman *et al.* (2006), it is necessary that the components in the system permit the exchange of data, resources and information regarding the organizational processes so that a defined semantics, regardless of the organizational particularities such as data format or interfaces, can be presented. Thus, more than only data exchange, interoperability enables the execution of operations in another system.

There are many different ways to assess the interoperability of a system. The LCIM (Levels of Conceptual Interoperability Model) defines 7 different levels to characterize interoperability and is described by Turnitsa (2005). The first one, level 0, refers to ‘no interoperability’. Level 1 refers to ‘technical interoperability’, which means that there is an exchange of data from one application to another. Level 2 refers to ‘syntactic interoperability’, when a protocol is created to the use and exchange of information. Level 3 refers to ‘semantic interoperability’, when the system uses a common information exchange reference model. Level 4 is ‘pragmatic interoperability’, when there is a concern with the applied methods and procedures. Level 5 refers to ‘dynamic interoperability’ and in this level, the system is able to work on data over time. Level 6, ‘conceptual interoperability’, refers to the highest level of interoperability, when the system works based on engineering methods. For Panetto *et al.* (2016, p. 52) “enterprise interoperability maturity can be measured in two ways: *a priori*, where the measure relates to the potential of a system to be interoperable with a possible future partner whose identity is not known at the moment of evaluation, and *a posteriori*, where the measure relates to the compatibility measure between two (or more) known systems willing to interoperate or to the measurement of the performance of an existing interoperability relationship between two systems”.

In this way, it is essential that the PMSs be designed with an information structure that guarantees interoperability with different systems. PMSs, as stated by Poister et al. (2014), contribute with information for managers monitoring performance. Kim (2013) and Toni & Tonchia (2001) consider that in companies involved in the process of integration, a suitable PMS is an essential factor in the sustainable development of these organizations since it helps to verify the achievement of common objectives, at the same time it promotes alignment of goals. Thus, a synergy effect can be created by seeking global performance improvement of the integrated companies, leaving in background the isolated performance of each company. In this scenario, Alfaro *et al.* (2009) argue that the correct design of the lifecycle of a PMS is essential to enhance interoperability of the extended business processes characterizing a collaborative environment. For the authors, the definition of interoperability criteria is crucial to analyze if business processes are being efficient and effective.

No part of the reviewed PMS implementation and operationalization process presents an objective that covers interoperability. Actually, although some research has been developed regarding performance measurement in a collaborative environment, e.g. Extended Enterprise Performance Measurement model proposed by Bititci *et al.* (2005), including intrinsic and extrinsic inter-enterprise coordinating measures, studies about PMSs that investigate business process interoperability are not common in the literature, as indicated in the literature review performed by Alfaro *et al.* (2009).

Guideline 9: Process design must address different types of exceptions

According to Deschamps *et al.* (2013, p.813), “there should not be exceptions throughout the process execution, but when one exception is considered, a procedure should be established to deal with this circumstance. Dealing with the unpredictable must be considered in organizational systems”. For Kurz *et al.* (2013, p. 123) “while the term exception suggests that these deviations from business processes are only occurring rarely, exceptions are a normal part of business process execution. However, so far documented and applied methodologies, IT systems and procedure models seem inadequate for their effective and efficient management.”

In systems programming, for Schildt & Skrien (2013), there is the concept of exceptions treatment, which implies in identifying unusual situations during systems execution and treating them. It is important to consider what an exception is to understand this guideline. Kurz *et al.* (2013, p.147) distinguish an exception in three types of events: “the type of events that must be

handled in a process which are known and for which the corresponding reactions are also well-defined (routine exceptions); the types of exceptions which are known, but for which the corresponding reactions cannot be strictly defined (minor exceptions); or the type of exceptions that are not known and for which the reactions are not defined in advance (major exceptions)". Larman (2007) distinguishes exceptions in defect, error, and fault:

- Defect: origin or cause of bad behavior, e.g., a programmer typed the database name incorrectly in a program's source code.
- Error: appearance of a defect during execution, e.g., when calling the program to obtain a reference for the database (wrongly typed), it points the error.
- Fault: denial of service due to an error, e.g., a seller cannot register an order in the system because when registering it, it cannot link to the correct database.

According to Larman (2007), when approaching different kinds of exceptions, the distinction between exception launch and exception treatment must be considered. For exception launch, where the error occurred and the context involved are considered. For exception treatment, the register of a failure (either centralized or distributed) and the user notification are considered.

It is necessary to consider prevention of errors, fault, defects and other undesirable situations in an organizational system. Thus, according to Calazans & Oliveira (2005), systems maintenance must be provided. Maintenance can be classified as corrective (removal of design, logic and codification errors or faults in the system), adaptive (making necessary changes regarding the external environment), evaluative (improving functionalities already in use according to the data gathered by developers and users) and preventive (considering changes of internal and external environments in advance). Antunes (2011) analyzed the exception treatment in BPM (Business Process Management) with a focus on resilience and concluded that the "automated exception handling is crucial to increase the organization's capability to resist expected exceptions. However, when other types of exceptions occur, human intervention is always required, and workers become a fundamental component supporting organizational resilience".

Despite the existence of Objective 4.1: verify whether everybody agrees with all high-level performance measures; Objective 9.1: verify whether all members of the organizational teams agree with the measures they will use; and Objective 10.2: set a mechanism for the revision of performance measurement system, they do not comprise the verification and improvement of the system and exception handling. The focus of these objectives is limited to the performance measures, and Guideline 9 encompasses a broader vision of review and system improvement

from the moment the organization realizes the existence of exceptions, i.e., situations that would need intervention to be corrected.

Guideline 11: Process semantics must be coherent and consistent throughout all processes

Deschamps *et al.* (2013, p. 813) refers to how proper semantic embedded into a process impacts its execution: “for a process to be consistently executed, proper terminology must be used among all processes and throughout the life cycle of a process. This enhances communication and the interaction among involved people. This guideline is supported by most reference models, which establish these semantics in their definitions”.

In the development of a PMS, Folan & Browne (2005) consider that the existence of a proper language is expected, in particular a comprehensible one, for everybody in the organization to be able to understand what is being measured and how it is being measured. An interface between people and system that allows speed in the measurement process and the correct use of the system is needed. Therefore, semantics and interfaces must be understandable and objective, but without losing their essence and not generalizing data that might be crucial to decision-making. Appropriate vocabulary and terminology must be used in all processes and throughout the whole life cycle of an operation so that it can be consistently executed, as this improves communication and interaction between the involved people.

Some organizations face difficulties in dealing with intangible data, goals and results, what makes it a challenge to find an appropriate semantics. It is the case of public sector organizations, third sector organizations, and social enterprises. According to Jung (2011), these organizations, especially the public sector ones, present ambiguous objectives. The complex terminology and intangible factors, as stated by Cordery & Sinclair (2013) and Moxham (2009), makes it difficult for these organizations to design and use a PMS. For instance, the measurement of social performance that affects these organizations is an intangible dimension to be managed and better investigated. Additionally, these organizations have to deal with different stakeholders’ requirements, their systems, and metrics, each of them having a different background and knowledge. So, the semantic attention is an essential concern to be considered in the PMS design.

No phase of the studied PMS implementation and operationalization process presents an objective that covers the semantic issue. There is a particular tendency to consider evaluations of physical and tangible resources, which comprise a common language, as observed by Folan

& Browne (2005). However, it is also important to bear a critical view of the intangible elements, with a suitable treatment of those elements and the definition of common terminology for referring to them.

Revised PMS implementation and operationalization process

This section presents a set of new objectives for the PMS process under study, based on the discussion of the previous sections in which enterprise engineering guidelines are presented and missing guidelines are identified, taking into account the considerations of the literature discussed in Section 5.

To meet guideline 2, regarding the involvement of people in the PMS process design, the proposal is to include a new part in Phase 1 with two new objectives, as shown in Table 26. This new part is to be Part 2, once the first part, regarding the identification of the main customer groups is related to specific management information, and the process can then follow with the previous Part 2 as Part 3 for the definition of organizational objectives with the participation of all people involved already guaranteed. The other parts in Table 2 are shifted accordingly.

Table 26: New part and objectives in Phase 1 to cover Guideline 2

NEW PART	NEW OBJECTIVES
PART 2: How will employees participate in system conception, implementation and control?	Objective 2.1: Establish criteria to form the teams for conception and performance monitoring.
	Objective 2.2: Establish a set of actions so that all employees are involved in the process from its conception, through development until monitoring of performance measures.

For guideline 5, regarding interoperability, the inclusion of a new part and four new objectives is proposed, as shown in Table 27. This is a new Part 4, providing support for the subsequent parts that might require an information system in place to collect information, process it and provide it back in the form of the measures and other necessary reports. The other parts in Table 2 are also shifted accordingly.

Table 27: New parts and objectives in Phase 1 to cover Guideline 5

NEW PART	NEW OBJECTIVES
PART 4: The supporting PM information system must be designed considering the interoperability	Objective 4.1: Identify the patterns of communication/interaction required by stakeholders in their organizational systems that must relate with the PMS.
	Objective 4.2: Describe the organizational processes necessary information structure.
	Objective 4.3: Evaluate the required computational environment (platform, architecture, and others) so that the PMS may interoperate with other organizational systems.
	Objective 4.4: Establish a systematic periodic review to evaluate the effectiveness of data and information exchange.

Additionally, the incorporation of two more objectives in the new Part 4 is suggested, to cover guideline 11, which refers to the semantics of the process, as can be seen in Table 28. This is important to be done in Part 4, with the objectives related to interoperability, as proper semantics is important to guarantee a common understanding of the terminology throughout the other parts.

Table 28: Guideline 11 to be included in the process

NEW PART	NEW OBJECTIVES
Part 4: The supporting PM information system must be designed considering the interoperability	Objective 4.5: Develop an interface so that the system can communicate with other systems.
	Objective 4.6: Identify the systems ontology.

Regarding guideline 9, in relation to the process handling all possible exceptions, despite the existence of objective 10.2 that sets a mechanism for the performance measurement system review, the proposal is that this objective is withdrawn and a broader and more descriptive part is incorporated in Phase 2, according to Table 29. This is a new Part 13, placed at the end of the process because its objectives complement the process by considering also the evaluation of system effectiveness, technology advancement and results of organizational changes.

Table 29: Guideline 9 to be included in the process

NEW PART	NEW OBJECTIVES
PART 13: Test the system developed for use/review	Objective 13.1: Carry out tests of the system to account for different use scenarios.
	Objective 13.2: Appoint people responsible for the developed system maintenance regarding error/fault prevention.
	Objective 13.3: Carry out improvement plans and include new functionalities according to the demands of users and problems reported by them.
	Objective 13.4: Evaluate possible changes and future improvements.

To sum it all up, the whole redesigned PMS implementation and operationalization process is shown in Table 31.

Table 30: Proposed PMS implementation and operationalization process

(a)

Phase	Part	Objectives
Phase 1: Identification, design and implementation of performance measurement	Part 1: What are the main customer groups?	Objective 1.1: identify the customer-product groups with distinct and competing demands. Objective 1.2: identify the customer-product groups. Objective 1.3: collect the identified customer-product groups data.
	Part 2: How will employees participate in system conception, implementation and control?	Objective 2.1: establish criteria to form the teams for conception and performance monitoring. Objective 2.2: establish a set of actions so that all employees are involved in the process from its conception, through development until monitoring of performance measures.
	Part 3: What are the organizational objectives?	Objective 3.1: reach a balanced set of organizational objectives for each customer-product group. Objective 3.2: identify the customer needs for each customer-product group, starting with the most important group. Objective 3.3: identify the stakeholders needs for each customer-product group. Objective 3.4: identify organizational objectives. Objective 3.5: verify whether a balanced set of objectives has been developed. Objective 3.6: set targets and verify strategies Objective 3.7: evaluate contributions. Objective 3.8: define responsibilities to verify or develop performance measures for each organizational objective.
	Part 4: The supporting PM information system must be designed considering the interoperability	Objective 4.1: identify the patterns of communication/interaction required by stakeholders in their organizational systems that must relate with the PMS. Objective 4.2: describe the organizational processes necessary information structure. Objective 4.3: evaluate the required computational environment (platform, architecture, and others) so that the PMS may interoperate with other organizational systems. Objective 4.4: establish a systematic periodic review to evaluate the effectiveness of data and information exchange. Objective 4.5: develop an interface so that the system can communicate with other systems. Objective 4.6: Identify the systems ontology.
	Part 5: Have the organizational objectives been reached?	Objective 5.1: develop performance measures for each organizational objective and complete a register form with the performance measures for each organizational objective.
	Part 6: Were the right measures chosen?	Objective 6.1: verify whether everybody agrees with all the high-level performance measures. Objective 6.2: set a process to follow the progress with the implementation of each measure. Objective 6.3: verify whether there are barriers for implementation.
	Part 7: Using the measures to manage the business	Objective 7.1: set a schedule of future performance reviews. Objective 7.2: set a mechanism to review the performance measurement system. Objective 7.3: conduct performance reviews successfully.

(b)

Phase	Part	Objectives
Phase 2: Identification of suitable performance measurement from the superior to the inferior levels in cascade	Part 8: What can be done to leverage performance in relation to the objectives?	Objective 8.1: identify performance conductors. Objective 8.2: fill in the “polar fishbone” graph. Objective 8.3: summarize the “polar fishbone” graph.
	Part 9: Which are the most important performance conductors?	Objective 9.1: identify which conductors are fundamental so that suitable performance measures can be developed. Objective 9.2: identify key-activities. Objective 9.3: evaluate key-activities (main). Objective 9.4: set responsibilities for the performance measurements for each key-activity.
	Part 10: How can one know whether these conductors are working?	Objective 10.1: identify one performance measure for each key-conductor. Objective 10.2: fill in a register form with each key-activity performance measure.
	Part 11: Were the right measures chosen for the conductors?	Objective 11.1: verify whether all the organizational team members agree with the measures they will use. Objective 11.2: set a follow-up process for each measure implementation progress. Objective 11.3: verify whether there are any barriers to implementation.
	Part 12: Use the measures to leverage organizational performance	Objective 12.1: set a schedule for future performance reviews. Objective 12.2: conduct performance reviews successfully.
	Part 13: Test the system developed for use/review	Objective 13.1: Carry out tests of the system to account for different use scenarios. Objective 13.2: Appoint people responsible for the developed system maintenance regarding error/fault prevention. Objective 13.3: Carry out improvement plans and include new functionalities according to the demands of users and problems reported by them. Objective 13.4: Evaluate possible changes and future improvements.

4.4.2 PMS implementation and operationalization reviewed through the design factors of NPO and public administration

After the review of the PMS implementation and operationalization through the enterprise engineering guidelines, an analysis through the designing factors is performed as indicated in the chapter of research design. So, the process is redesigned to attend NPO and public administration characteristics as shown the Table 31.

Table 31: Proposed PMS process approach

Phase	Part	Objectives
Phase 1: Identification design and implementation of performance measurement	Part 1: What are the main customer (beneficiary, client, user, consumer, patient or citizen) groups?	Objective 1.1: identify the customer- service (or product) groups with distinct and similarities demands. Objective 1.2: identify the customer- service (or product) groups. Objective 1.3: collect the identified customer service (or product) groups data.
	Factors perspective	<i>Social approach</i> : the customer, client, user, beneficiary, patient, citizen or consumer defined in the social mission and for whom the social value creation is guided.
	Part 2: How will the participation of employees, volunteers (when applicable) and key stakeholders in the system conception, implementation and control be defined?	Objective 2.1: Set criteria to form the teams for conception and performance monitoring. Objective 2.2: Establish a set of actions so that the facilitator in their leadership role involves all workers, volunteers, and other key stakeholders, in the process from its conception, development, and monitoring of performance measures.
	Factors perspective	<i>Involvement and influence of stakeholders</i> : through the participation of the employees, and by key stakeholders, including their requirements. <i>Volunteering</i> : when the organization works with volunteers especially in the primary activities. <i>Strategic management control</i> : the practice of involvement of the workers can improve the learning and continuous improvement, and also the management control and the making-decision.
	Part 3: What are the organizational objectives?	Objective 3.1: reach a balanced set of organizational objectives for each customer- service (or product) group. Objective 3.2: identify the customer needs for each customer- service (or product) group, starting with the most relevant group. Objective 3.3: identify the stakeholders needs and requirements for each customer-service (or product). Objective 3.4: identify organizational objectives. Objective 3.5: verify a balanced set of objectives that has been developed. Objective 3.6: set targets and verify strategies. Objective 3.7: evaluate contributions. Objective 3.8: define responsibilities to verify or develop performance measurements for each organizational objective.
	Factors perspective	<i>Social approach</i> : through the definition of the social goals. <i>Fairness</i> : the concern with the most relevant group considering their needs is an aspect related to the equity. <i>Involvement and influence of stakeholders</i> : the comprehension about the stakeholders needs and requirements helps the management. Also, once key stakeholders have their own measures or requirements, it is important their participation in the performance measures definition and review. <i>Short and long-term planning</i> : The definition and review of objectives are related to aspects of short and long-term, and impacts the management, as well as the <i>financial sustainability</i> .
	Part 4: The information system must operate considering the interoperability.	Objective 4.1: identify the patterns used by stakeholders in their organizational systems which must relate with the PMS. Objective 4.2: describe the organizational processes necessary structure, including aspects related to the accountability and legitimacy. Objective 4.3: evaluate the best computational environment (platform, architecture, and others) so that the system meets all the organizational systems. Objective 4.4: establish a systematic periodic review to evaluate the effectiveness of data and the exchange of information qualitatively. Objective 4.5: develop an interface so that the system can communicate with other systems. Objective 4.6: identify the systems ontology.
	Factors perspective	<i>Involvement and influence of stakeholders</i> which means to design a PMS with an interface able to work with stakeholders' system and platforms, even if work with spreadsheets. Aspects related to the <i>accountability</i> should be strongly encouraging once its requirements and legal obligations are one of the main reasons for the use of PMS in NPO and public administration and often provides results across multiple partner systems.
	Part 5: Have the organizational objectives been reached?	Objective 5.1: develop performance measurement for each organizational objective and complete a register form with the performance measurements for each organizational objective. Objective 5.2: develop performance indicators to intangible aspects related to the social value creation and social impact. Objective 5.3: develop criteria to evaluate the performance in short and long-term.
	Factors perspective	<i>Strategic management control</i> , i.e., aspects related to management process and administrative routine. <i>Social approach</i> : measures that express the social value creation and the social impact can be provided. <i>Efficiency and effectiveness</i> : measures related to these two aspects can improve the performance management. <i>Short and long-term planning</i> is a critical issue to these organizations once the social impact usually can be identified in long-term and the legal and financial reports are required in the short-term.
	Part 6: Were the right measures chosen?	Objective 6.1: verify whether everybody agrees with all the high level performance measurements. Objective 6.2: set a process to follow the progress with the implementation of each measurement. Objective 6.3: verify whether there are barriers for implementation.
	Factors perspective	<i>Involvement and influence of stakeholders</i> : the participation of all levels of organization can provide learning and continuous improvement. Also, the participation of key stakeholders increases the legitimacy and guarantee the reach for important and required aspects. Beyond these aspects, provide the involvement of stakeholders can improve the interest to use the PMS as a source of information, and legitimize the data of accountability and other performance reports.
	Part 7: Using the measures to manage the organization	Objective 7.1: set a schedule of future performance reviews. Objective 7.2: set a mechanism to review the performance measurement system. Objective 7.3: conduct performance reviews successfully.
Factors perspective	The review of the performance measures and the system is related to <i>social approach</i> , i.e., the concern with social value creation and social impact, <i>short and long-term planning</i> and to <i>financial sustainability</i> , to maintain the relevance of the data supporting the making decision, planning and control, and to <i>strategic management control</i> , developing a systematic to use the measures and conduct the reviews.	

(b)

Phase	Part	Objectives
Phase 2: Identification of suitable performance measurement from the superior to the inferior levels as in a cascade	Part 8: What can be done to leverage performance in relation to the objectives?	Objective 8.1: identify performance conductors. Objective 8.2: fill in the “polar fishbone” graph. Objective 8.3: summarize the “polar fishbone” graph.
	Factors perspective	<i>Social approach</i> identifying key aspects related to the social goals that can influence the performance measurement. <i>Efficiency and effectiveness</i> , using key measures and techniques to improve the management.
	Part 9: Which are the most important performance conductors?	Objective 9.1: identify which conductors are fundamental so that suitable performance measurements can be developed. Objective 9.2: identify key-activities. Objective 9.3: evaluate key-activities (main). Objective 9.4: set responsibilities for the performance measurements for each key-activity.
	Factors perspective	<i>Social approach</i> , i.e., the social aspects related to the mission, vision and goals influence all management and even the financial result does not provide a good result, if the social impact is significant, the performance is reached. The <i>involvement and influence of stakeholders</i> consider the definition of who are the key workers and stakeholders.
	Part 10: How can one know whether these conductors are working?	Objective 10.1: identify one performance measurement for each key-conductor. Objective 10.2: fill in a register form with each key-activity performance measurement.
	Factors perspective	Aspects related to <i>efficiency and effectiveness</i> .
	Part 11: Were the right measures chosen for this conductor?	Objective 11.1: verify whether all the organizational team members agree with the measures they will use. Objective 11.2: set a follow-up process for each measure implementation progress. Objective 11.3: verify whether there are barriers to the implementation.
	Factors perspective	Aspects related to the <i>involvement and influence stakeholders</i> considering the association in the use of the measures, as workers or who receive those data, and potential culture clashes.
	Part 12: Use these measures to leverage organizational performance	Objective 12.1: set a schedule for future performance reviews. Objective 12.2: set a mechanism to review the performance measurement system. Objective 12.3: conduct performance reviews successfully.
	Factors perspective	Future reviews are related to the <i>involvement and influence of stakeholders</i> , short and long-term <i>planning</i> , and <i>social approach</i> regarding to social value creation and social impact.
Part 13: Test the system developed for use review	Objective 13.1: carry out sub-routine automated test. Objective 13.2: appoint people responsible for the developed system maintenance regarding the preventive aspect. Objective 13.3: carry out improvement plans and include new functionalities or their coverage of the system being used with the user participation. Objective 13.4: evaluate possible changes and future improvements.	
Factors perspective	The planning to the use and review of the system should be concerned by the organization and its key-stakeholders, through the <i>involvement and influence of stakeholders</i> and the <i>strategic management control</i> .	

The adaptation of terms and also the considerations through the knowledge of the designing factors contribute to the comprehension how each step of the PMS implementation and operationalization plays in those organizations. Also, the adaptations help to the approach not be so business. It is worthwhile mentioning that in the previous model, the objectives focus on ‘distinct and competing’ demands. With the NPO and public administration perspective, the objective has an update and the ‘competing’ aspect is changed to ‘distinct and similarities’ demands. Usually, the NPO and public administration do not work competing with their pairs, but can work to evaluate the best practices and evaluate themselves by the benchmarking strategy. So, the Part 1 of the PMS implementation and operationalization also changed their terminologies for:

- Objective 1.1: identify the customer-product or service groups with distinct and similarities demands.
- The similarities demands are important to know because can be analyzed by benchmarking.

- The distinctive one is important to evaluate the best practices and decision areas to improve to guarantee a good level of service for their audience.

Some aspects are not well-defined in their context, i.e., problems with terminology is a critical issue as the distinction of NPO in terms of legal aspects that differentiate social enterprises, charities and foundations, for example, and also the identification of the kind of their audience. So, it is mentioned that the customer perspective may include: beneficiary, client, user, consumer, patient and citizen. Moreover, the previously PMS implementation and operationalization indicated the assessment of ‘what are the main customer groups’. It is not about which group is more important, but which one requires more attention by these organizations. Also, the most part of these organizations offer service more than offer products so the nomenclature was also adapted.

Besides that, the enterprise engineering guidelines indicates that must be a participation of all employees in the conception of the system. In NPO and public administration is common the presence of volunteers so, it is important to evaluate the level of their participation in management aspects especially when they work in primary activities. Beyond the volunteers, it is common in their context that other stakeholders participate in the design process indicating requirements or performance measures.

Because of the social approach in these organizations, it is common the occurrence of intangible results. In this way, it is suggested new objectives in the Part 5 that evaluate if the objectives have been reached or not. The proposed objectives are:

- Objective 5.2: develop performance indicators to intangible aspects related to the social value creation and social impact.
- Objective 5.3: develop criteria to evaluate the performance in short and long-term.

In the same way, adaptations were made in the objectives of the parts 2 and 4. For the Part 2, the possibility of the volunteering is indicated and also the participation of key stakeholders as illustrate the objective 2.2. In the Part 4, about the interoperability of the PMS, the objective 4.2 include the aspects related to the accountability and legitimacy.

Finally, comments of design factors are made for each set of objectives to help the understanding of the importance of that procedure in the PMS implementation and

operationalization process and how it is applied in the context of an NPO or public administration.

4.6 Synthesis of the results

Figure 24 illustrate a synthesis of the main results of this thesis organized in the four phases according to the research design: mapping literature, content analysis, case study, and PMS implementation and operationalization process.

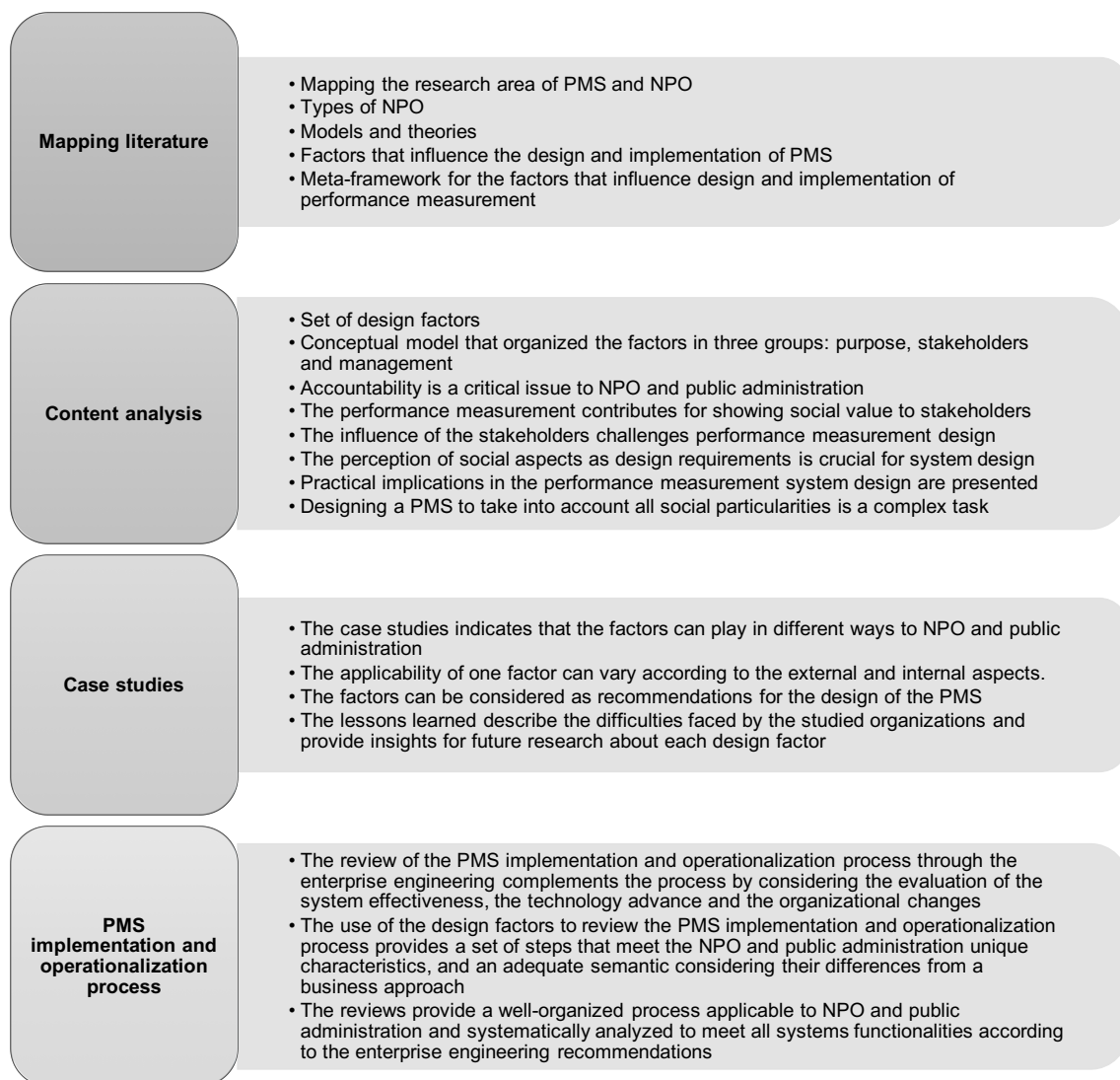


Figure 24: Synthesis of the results

The next chapter presents the conclusion of the study, contributions, limitations and future research.

5 CONCLUSION

This last chapter presents the conclusion of this study. In addition, the chapter presents a synthesis of contributions, research limitations, and recommendations for future research.

RQ1. What are the factors that influence the design of PMS in NPOs and public administration?

The first research question comprises two research objectives. The first one is to **examine the literature related to PMS in NPO and public administration** which will provide the portfolio to reach the second research objective. Following the overview of the project and main results presented in Figure 2, the main outcome in the step “mapping literature” is the “mapping literature of PMS to NPO and public administration”. The mapping of the literature provided a comprehensive synthesis of the study of PMS in NPOs and public administration through an SLR, the bibliometric and network analysis. Papers dealing with public organizations appeared in the research results, and although they have legal differences, these organizations resemble each other in that they pursue social goals rather than financial profit for their investors or partners. In fact, some studies about performance measurement and management work with both kinds of organizations, e.g., Berman (2014), Sinuany-Stern & Sherman, (2014), Micheli & Kennerley (2005) and Poister, (2003). Thus, the research team decided to include the public administration in this study. The SLR paper set is based on documents that meet two criteria: the main paper theme should be related to public institutions, foundations, private institutes, cooperatives, associations, non-governmental organizations (NGO) or social enterprises; and the paper should cover performance studies: PMS, performance indicators/measures, and performance measurement processes – design, implementation, use or review.

The topic related to the NPO is the most critical if comparing to public administration in terms of complexity of structure and also, because there are still many inconsistencies in the literature such as the terminology and the typologies used to refer to NPO. It is decided to add a public administration perspective to the study as it is strongly related to the studies of performance on NPO, but take into account its deployment from NPO studies. In this

sense, the research theme encompasses some works on public administration as they share some common characteristics with NPO.

According to the results, it is possible to conclude that the investigation on performance measurement in NPO is still in its early stages of development with many opportunities to further develop the field. Although PMS is a consolidated topic, the design and implementation of PMS for public administration and especially for NPO is a recent issue, while public administration studies reveal more maturity in managing through measures. However, this situation does not represent a consolidation in the research topic. In fact, the literature points multiple challenges to the design, implementation, and use of PMS in the public context.

In order to deal with the second research objective to **identify, analyze and conceptualize the factors that influence the *design* of PMS in NPO and public administration**, and to answer the first research question a content analysis in the reviewed literature is performed in the SLR. Following the overview of the project and main results presented in Figure 2 the main outcomes in the step “content analysis” are the “identification and conceptual model of design factors”, and “practical implications”.

The content analysis synthesized the literature and provided a conceptual framework of the factors that influence the *design* of PMSs in NPOs and public administration. Ten factors are identified and organized into three groups: factor related to purpose, factors related to stakeholders, and factors related to management. A conceptual framework is drawn from the analysis of these factors.

Also, the network analysis of the factors contributes to the knowledge of NPOs and public administration PMS design factors through a systemic view, particularly showing how the social approach is crucial to characterize these organizations and differentiate it from other companies, guiding the design of its PMS by highlighting that the goal is to pursue social impact, with profit remaining in the background. Also, the analysis shows the influence of stakeholders on governance, through the providing of financial resources and the determination of social goals, and on accountability requirements, and the challenge of assessing efficiency and effectiveness. In this complex environment, the PMS could play an important role in assisting their management and operating the intangible aspects that involving their social approach.

RQ2. What is the role that the design factors play in some applications of PMS in NPO and public administration?

The third research objective is to **describe the features of the NPO and public administration through the lens of performance measurement and how these features influence the design of PMS for them**. From the results of the SLR and content analysis, the set of design factors was tested in 3 NPOs and 3 public administrations that support the knowledge about what are the factors that can influence the design of a PMS in the context of an NPO and public administration. Following the overview of the project and main results presented in Figure 2 the main outcome in the step “case study” is a “list of design factors discussed and analyzed by the roles that they play in some applications of performance measurement systems in nonprofit organization and public administration”.

The case study indicates that the factors can play in different ways to these organizations. The applicability of one factor can vary according to the external and internal aspects and influences. The results suggest that the set of factors should be considered as recommendations for the design of the PMS. In this way, the managers, practitioners, and researchers must evaluate each factor considering the operational characteristics, the legal obligations, the organizational culture, and mainly, the organizational strategy focusing on the PMS as a component of the iterative process to the PMM.

The results point out that there are a variety of factors related to purpose, stakeholder, and management and their unique organizational characteristics impact the usability and viability of the application of the PMS by them.

In this way, the design factor related to purpose plays to develop a system with the proper focus. Each performance measurement framework presents an approach to focus on as the dimensions of financial, customer, internal business processes, and learning and growth of BSC or the stakeholder perspective of Performance Prism. Also, the design factor related to purpose support the design of performance measures or indicators to reflect the social and intangible results, so evident in the NPO and public context.

The design factors related to stakeholders play to develop a system that operates under the stakeholders’ requirements, especially ones related to the legal obligations to

accountability. A performance measurement framework that deals with the stakeholders' perspectives, needs to manage the different levels of influence of the stakeholders and provide useful information for that. Moreover, a suitable and interoperable PMS will support the management and processes related to accountability, legitimacy, and volunteers' management when applicable.

The design factors related to management play to develop a system that supports the management control, strategy and making-decision. Each design factor about management endorses the design a PMS with a holistic view of the organization including the financial aspects and the strategic management control. Although the NPOs and public administration do not reach the financial profit, these organizations deals with financial restrictions, work under external pressures and may be subject to the variations of public policies. How to establish performance measures considering the intangible results is a complex issue and will influence the way to assess the efficiency and effectiveness in short and long-term. Finally, the perspective of learning and continuous improvement is little explored in these organizations, but they could certainly contribute to the management and satisfaction, including volunteers.

RQ3. How to conduct a PMS design in NPO and public administration and how the design factors can support this process?

The last two research objectives work to propose practical implications in the design process to support the managers, practitioners and researchers to reach all particularities of NPO and public administration. Following the overview of the project and main results presented in Figure 2 the main outcome in the step "PMS implementation and operationalization process" is the "review exercise using the design factors". For that, a 'PMS implementation and operationalization process' was examined under two approaches: enterprise engineering guidelines, and after, by the design factors. This PMS design approach proposed by Neely *et al.* (2002) is organized as a handbook to facilitate its application. Arranged in two phases, the authors suggest a 10-part process, in which the first phase comprises the first 5 parts and the second phase the other 5 parts. Each part contains a set of objectives that are examined in the process described below.

A first review of a PMS implementation and operationalization process is performed to reach the fourth research objective, i.e., the objective is to **investigate how can one guarantee that a PMS does not become obsolete so that capabilities are developed for keeping it updated in a complex and dynamic environment**. The examination of the PMS by the enterprise engineering guidelines work to guarantee a complete approach which can help the diagnosis and the redesign of a system to incorporate missing functionalities considering a dynamic model.

The process comprised examining the objectives of the PMS implementation and operationalization process to determine whether all of the guidelines were fulfilled. Evidences of the association between the enterprise engineering guidelines and the PMS implementation and operationalization process objectives was found for eight guidelines. However, for relations between enterprise engineering guidelines and PMS design process objectives, four guidelines are not found, which are:

- People involved in a process must participate in its design (Guideline #2);
- Information structure must be based on open standards to ensure interoperability with different systems (Guideline #5);
- Process design must address different types of exceptions (Guideline #9);
- Process semantics must be coherent and consistent throughout all processes (Guideline #11).

To meet those guidelines, a revised PMS implementation and operationalization process is suggested. New parts and new objectives are recommended offering a process with two phases when the first phase offers seven parts and objectives, and the second phase with six parts and objectives.

After the review of the PMS implementation and operationalization through the enterprise engineering guidelines, an analysis of the designing factors is performed to reach the next research objective.

The fifth and last research objective is to **suggest a review a PMS implementation and operationalization process for NPO and public administration**. This objective raises from the lack in the literature that points that the available frameworks are too business

and could be complex to their application in NPOs and public's context. So, the design factors are applied as a criterion to review the method, and some recommendations are suggested to present a suitable and applicable PMS for NPO and public administration.

The process is redesigned to attend NPO and public administration characteristics and new objectives are recommended in the parts #1 and #5 of the process. Also, adaptations of terms are suggested in order to present an approach not so business, and adaptations are also advised to including the perspectives of volunteering, stakeholders' involvement, interoperability, accountability, and legitimacy. Comments of design factors are made for each set of objectives to help the understanding of the importance of that procedure in the PMS implementation and operationalization process and how it is applied in the context of an NPO or public administration.

Summarizing and concluding, this study achieves its purpose of identifying the factors that influence the design of PMS in NPO and public administration and discuss the role that the design factors play in practical implications. The identified factors and their analyzes regarding content analysis and case studies allowed an exercise review in a PMS implementation and operationalization that can assist researchers and managers in the design or re-design process of a PMS.

5.1 Contributions

This section organizes the main contributions of the thesis according to the four phases of the research design, i.e., mapping literature, content analysis, case studies, and PMS implementation and operationalization.

Mapping literature

Conceptual frameworks and models, as well as specific theories, are being generated for this field of research, and the process of adapting models from the general field of performance measurement is taking place. The framework that organizes the main research topics of PMS in NPO and the framework that consolidates preliminary factors that influence the design and the implementation of PMS in NPOs developed from the SLR represents fundamental contribution to the research area.

Content analysis

The conceptual model presented in this study can further assist practitioners in developing performance measurement systems observing the role that the identified factors play. For instance, factors related to purpose may inform the content of measures. Factors related to stakeholders may inform the breadth of the system, whereas factors related to management impact PMS processes.

The conceptual framework contributes to understanding the context of PMM for NPOs and public administration in contrast to PMM for for-profit organizations. Findings also identify factors that are unique to these organizations, contributing to the research area, such as fairness, volunteering, and financial sustainability through the alternative sources of income, that seldom appear in for-profit models. Understanding the differences between for-profit and NPOs will surely contribute to the design of more consistent PMSs, that are aligned with the organizational context of the environment in which an organization operates.

Some challenges for the design of PMS for these organizations can be identified, such as:

- The PMS can assist the organization in providing accountability for its actions, as expected by stakeholders and according to the pertaining legislation.
- The PMS may provide reports which attest good organizational performance, efficiency in financial management and/or social impact, including tangible and intangible results in short and long-term for stakeholders.
- The PMS can provide performance measures or indicators that contribute to transparency and also proves organizational effectiveness to promote it for stakeholders.
- The PMS can integrate organizational performance measures and stakeholders' demanded indicators.
- The PMS interface should translate social demands in information that can be promptly used in the performance measurement process.
- The system interface should consider the multi-dimensional measures of an NPO and public administration and be integrated with other systems.

- The PMS should be promoted for use in the organization and should be designed to avoid the resistance of employees and external stakeholders.

The originality of this study is supported by the fact the SLR did not find any investigation that performs the same approach than shown in this research, neither so many design factors are identified.

Case studies

Both literature review as the case studies point that NPOs and public administration have unique characteristics that differentiate them from the private sector. So, these characteristics will affect their organizational routine and, consequently, their performance measurement. As the literature suggests that the adoption of traditional PMS was not so acceptable for many NPOs and public administration, the case studies attest that these organizations present distinctive characteristics like the presence of volunteers in their activities or the concern about financial sustainability when involves alternative sources of income and legal restrictions in the using the resources.

Although there are legal characteristics that differentiate NPOs to public administration, the case study points that in the context of the design of PMS, both organizations present similar characteristics and can be evaluated considering their main approach which is the social concern to their audience. In the case studies results, all factors are related to both organizations.

PMS implementation and operationalization process

The reviewed PMS implementation and operationalization process can be used by managers, researchers, and practitioners that want to design, re-design or evaluate their PMSs. Its use is encouraged once the process is organized as a handbook to facilitate its application. With the first review, the applicability of the PMS implementation and operationalization process is useful for any organization, i.e., private, nonprofit and public organizations. However, the review performed by the design factors provide an approach

with an appropriate semantic and a systematical review contributing to a suitable and applicable PMS for NPO and public administration.

5.2 Limitations

The limitations can be described in three central topics: theoretical limitations, methodological and related to the practice.

First of all, the theoretical limitations are related to the theme delimitation. The terminology of an NPO is not very well consolidated in the literature, so this lack is considered a limitation to delimitate the research scope. In this way, the differentiation of the NPOs to the public sector was an issue to be discussed by the research team once these organizations pursue the social purpose but lawfully present distinctive characteristics. Despite these differences, some papers in the literature review were conducted for both organizations and point that they have similarities in the performance measurement context.

While this review is designed to be as comprehensive as possible, a limitation of this approach is that the results are limited to the publications available on the searched platforms.

Another limiting factor was the difficulty in identifying the factors. Different authors have been studying the design, implementation and use of performance measurement in NPOs and public administration and mention drivers, motivations, barriers and other terms to refer to aspects that should be considered in PMSs, without employing a specific nomenclature. One of the main difficulties was to understand how different authors referred to these aspects and identify them.

The review of the PMS implementation and operationalization process through the enterprise engineering guidelines was a challenge because it is a detailed process of analysis. For that, it is important a good comprehension of enterprise engineering recommendations. The review using the design factors was challenging to provide a useful PMS design approach for the NPO and public administration with an appropriate semantic that facilitates the method's application.

Lastly, the practical limitation is related to the case study phase to get the participation of an NPO or public administration that use a PMS. Some of them do not consider the PMS as a useful tool or do not have financial resources to design or implement it or do not have enough human resources to provide efforts to do that. Despite this limitation, it is worth noting that all participants praised the research's scope and are interested in the results to improving the organizational awareness about the performance measurement and how it can improve the management.

5.3 Recommendations for future research

As future work, it is recommended that a research agenda is structured for PMS in NPO, which identifies the main research groups and the principal questions to be studied to contribute to the consolidation of research in this area of study. The research agenda will contribute to the development of the maturity of the area. According to research developed by Keathley-Herring et al. (2016) about the maturity of a research area, the analysis of maturity can be the result of how well established a field is and also by the view that the number of cycles of the research can indicate this maturity. In this sense, the study presented in this thesis shows that the study of PMM for nonprofit and public organizations as research area are not mature. The study of adequate PMSs for these organizations are not well established yet in the papers of Operations Management area as shows the SLR and bibliometric analysis. More specifically in the study of design factors, few papers were conducted to provide suitable frameworks for NPO and public administration. As discussed before, the use of PMS for the private sector is not so accepted by managers of nonprofit and public organizations and don't fit considering their dynamic and management. In this way, the research is limited and fails to provide enough theories related to the management control and PMM for those organizations and is still assigned to the adaptation - and to discuss these adaptations - of systems.

Future research should be conducted to improve the characterization of NPO and public administration in the performance perspective. Although they are not the same kind of organizations, they have similarities in terms of social purpose and financial restrictions.

The case studies provide insights for future research for each design factor as indicated in Table 32.

Table 32: Recommendations for future research

Design factor	Future research
Social approach	Few studies are being attended to define performance measures, especially for intangible aspects related to NPOs and public administration. Berenguer (2015), presents some metrics for the performance measurement in NPO by three perspectives: input metrics (costs, time, and donations), output metrics (effectiveness, equity, equality, and social welfare), and efficiency metrics (efficiency, flexibility, and sustainability). So, as a recommendation, the development of performance measures for intangible results will be useful.
Accountability	How to transform performance measures into data to accountability reports should be more studied. Studies as developed by van Overmeeren et al., (2010) and Noordin et al, (2017) point that the accountability can present different perspectives and obligations by cultural or legal aspects.
Legitimacy	Legitimacy is a very significant issue to NPOs and public administration regarding attract or maintain investments, and reach the trust of the public as a reliable organization. Even if the legitimacy is not the primary goal to use a PMS, some tactics for use the performance measures could be designed to support the process of the legitimization, trust, and credibility.
Volunteering	Measure the performance of volunteers can support the process of rewards and monitoring. How to reward and improve their performance is a critical issue and studies about this concern, especially in public administration should be developed. Also, legally aspects should be considered in the design of PMS.
Involvement and influence of stakeholders	More studies should be conducted to a better comprehension of how to manage all of stakeholders using the PMM. Differences in the cultural aspects of what and how measure need to be investigated as cited Conaty, (2012).
Financial sustainability	Financial sustainability is a critical issue to public administration and especially to NPOs because of the concern with attracting and maintain funds, donations or investments. In this way, design a PMS that can fit tools to manage the different sources of income, support the short and long-term planning and control, and also produce performance measures according to each investment/source may be an interesting tool for these organizations.
Short and long-term planning	A critical feature in a PMS for these organizations could be the short and long-term aspect. This setting would support the planning and control improving the management and making-decision. So, future research should be conducted to investigate how to manage into short and long-term and also, how to translate the results, social value creation, and social impact in this way.
Fairness	The fairness is not very well investigated in the studies of the PMS for NPOs and public administration. Studies about this characteristic could help the organization for the legitimacy, accountability, and making-decision.
Efficiency and effectiveness	The practice of the effectiveness measurement could be more investigated and its aspects of how to measure better detailed in the literature.
Strategic management control	Aspects related to the strategic management control is an essential issue in private organizations. As the importance of performance measurement aspects is growing to be applied in NPO and public administration, studies about this could be better investigated, even if their use with this purpose be a secondary goal. Studies of Ebrahim & Rangan, (2014); Nguyen, Szkudlarek & Seymour, (2015) and Crucke & Decramer, (2016) show that this concern is better consolidated in the social enterprises.

Of all these recommendations in Table 32, some topics need more attention in the study about the performance measurement. The study of volunteering in the public sector is not strongly developed, but the case studies confirm that some public administration work with volunteers, even in not primary activities. So, more research about the volunteering and how to measure their performance and rewards the volunteers should be conducted. Besides that, once some NPOs work to provide services that sometimes the public sector is not able to do, the interest to work from a fairness perspective should be more studied too.

As well, studies must be conducted to develop performance measures that reflect the social approach, especially the measures of the social value creation and the social impact, and all intangible results that involve those organizations.

The factors can be applied in a survey with NPOs and public administration to evaluate their applicability for all types of nonprofit and public organizations and how distinct they are from the private sector. In fact, future studies are recommended and important, mainly to increase the power of generalization of the design factors in the different kinds of NPO and public administration.

The reviewed PMS implementation and operationalization process must be applied in NPO and public administration to validate the adherence to the method. This normative orientation gave to the PMS implementation and operationalization process using the design factors is an example of their application, and more investigations can be designed in this approach.

Despite the skepticism of PMSs adoption from the private sector or adaptations of them, as future research, the set of factors could be used as a guideline or criteria to assess the dimensions of those PMS. So, traditional approaches as BSC and Performance Prism can be assessed and, once the set of factors are reflected in its design and corresponds to the organizational characteristics, the use of that PMS could be considered beneficial and applicable to the management control. So, managers or researchers who are reviewing the PMS for an NPO or public administration could examine the review process and performance measures definition following the perspectives of the design factors and the practical implications presented in this research.

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APPENDIX A

1. Performance measurement in nonprofit organizations & public administration: A literature review
2. Designing performance measurement systems in nonprofit organizations and public administration
3. Design factors of performance measurement system in nonprofit organization and public administration
4. Designing performance measurement system for nonprofit and public organizations: a study based on multiple cases
5. An enterprise engineering-based revision of the performance measurement systems implementation and operationalization process



Performance measurement in nonprofit organizations & public administration: A literature review

Journal:	<i>International Journal of Productivity and Performance Management</i>
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Keywords:	Nonprofit Organizations & Public Administration, Performance Measurement Systems, Systematic Literature Review, Bibliometric Analysis, Social Network

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Performance measurement in nonprofit organizations & public administration: A literature review

Abstract

Purpose: Performance Measurement (PM) systems in Nonprofit Organizations (NPO) and Public Administration (PA) are more complex than in for-profit organizations. While the mission of for-profit companies is primarily to focus on profit and shareholder wealth maximization, NPO & PA have an orientation towards social mission and values. Thus, PM Systems in NPO & PA should consider not only organizational efficiency and viability, but also the social impact of the organization. Hence, it is necessary for PM systems in NPO & PA to be developed with frameworks, tools, processes, requirements and indicators that address these specific characteristics and consider multiple stakeholder perspectives. This research provides a comprehensive synthesis of PM systems in NPO & PA.

Design/methodology/approach: Through a systematic literature review, supported by bibliometric and network analyses. A paper set of 240 articles related to this research field is examined. Topics that are the most prevalent in this research area and their interrelationships are identified, presenting an outline of current efforts.

Findings: Despite the descriptive analyses that describe the paper set, a meta-framework is proposed that organizes these topics and shows the particularities of PM systems in nonprofit organizations. Additionally, a framework is proposed that organizes the design and implementation factors of PM systems in nonprofit organizations and public administration, identifying the main requirements for their successful development. These findings enhance understanding of this area, building upon prior research. It is also observed that public administration models could contribute for nonprofit measurement as they play complementary roles.

Originality/value: According to the results, it is possible to conclude that the investigation on performance measurement in nonprofit organizations is still in its early stages of development with many opportunities to further develop the field. Conceptual frameworks and models, as well as specific theories are being generated for this field of research, and the process of adapting models from the general field of performance measurement is taking place. The meta-framework that organizes the main research topics of PM system in nonprofit organizations and the framework that consolidates factors that influence the design and the implementation of PM systems in nonprofit organizations developed from the systematic literature review represent a fundamental contribution to this field of study.

1
2
3 **Keywords:** Nonprofit Organizations & Public Administration, Performance Measurement Systems,
4 Systematic Literature Review, Bibliometric Analysis, Social Network.
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8 **Introduction**

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10 Social demands may be seen as a challenge for governments and society. Nonprofit
11 organizations (NPO) are an alternative approach to address collective needs of specific
12 groups in the community and represent many types of organization, e.g., universities,
13 schools, hospitals, religious institutions, local, state and federal governments,
14 nongovernmental organizations (NGO), charitable institutions, trade unions,
15 humanitarian aid agencies, foundations, cooperatives, and others that include volunteers
16 and the third sector (Frumkin, 2005, Moxham, 2009, 2014, Valentinov, 2011).
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19 According to Frumkin (2002) there are four basic functions of nonprofit work: service
20 delivery, civic and political engagement, social entrepreneurship, and values and faith.
21 The present paper is positioned in the supply and instrumental side of service delivery,
22 social entrepreneurship, and values and faith.
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25 In this kind of organization, social goals are more important than profit and outcomes
26 are measured by social value and social impact. Legally, an NPO has financial
27 restrictions and cannot share profit. Profit is possible, but its use is restricted (Moxham,
28 2009, 2014, Kong, 2010, Valentinov, 2011).
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31 Also, many NPO depend on funding, donations, and volunteering to support their
32 activities. This has implications for management of the organization because of this
33 external dependence for financial resources, and sometimes, for human and material
34 resources. Moreover, Moxham (2009) argues that this context implies trust by the
35 community for potentially intangible results and different perspectives of stakeholders.
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3 The multiple particularities are what differentiate an NPO from traditional enterprises
4 but is also, what makes it difficult to measure their performance (Arena et al. 2015,
5 Mehrotra and Verma, 2015, Euske, 2003).
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9 Some PM frameworks have been adapted for NPO. One of the most widespread PM
10 systems in the literature and in practice is the Balanced Scorecard (BSC) developed by
11 Robert Kaplan and David Norton and introduced in 1992. According to Hoque (2014),
12 even in the discussion of other systems or frameworks developed since then, the BSC is
13 broadly mentioned and sometimes used as a starting point. Furthermore, Moxham
14 (2009) and Straub et al. (2010) comment that this practice of adaptation is not so well
15 accepted.
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18 Thus, this paper addresses PM systems in nonprofit organizations and, for this, a
19 systematic literature review is conducted. The main findings from this review are
20 presented through bibliometric and keyword network analyses. The results are used to
21 propose a meta framework that organizes the main research topics of PM systems in
22 nonprofit organizations and a framework to consolidate factors that influence the design
23 and the implementation of PM systems in nonprofit organizations. The initial findings
24 of the literature review add the immediate perspective of public administration to the
25 review to the point to be considered under the meta-framework that delimit performance
26 measurement activity.
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46 **Performance Measurement Systems**

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48 Moxham (2009, 2014) observes that there is no consensus or agreement about the
49 definitional terminology for nonprofit organizations, for example what indicates that a
50 charity institution is a kind of nonprofit but there again not all organizations have to be
51 a charity organization. In this context, the sector is diversified, including cooperatives,
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3 voluntary agencies, religious institutions, hospitals, museums, trade unions, universities,
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5 civil right groups and third sector organizations. In this perspective of creating social
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7 value it could be also added the perspective of public administration (Karwan and
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9 Markland, 2006, Moxham, 2009, 2014, Sole and Schiuma, 2010, Valentinov, 2011).

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11 For the purpose of this work, an NPO is defined as an organization with financial
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13 restrictions in that its surplus funds cannot be distributed or shared with those who
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15 control it, but which can be used for reinvesting in social targets (Moxham, 2009, 2014,
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17 Kong, 2010, Valentinov, 2011).

18
19 NPO have characteristics that differentiate them from for-profit organizations. NPO
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21 have income sources that come from donations, private partnerships or public
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23 investments; human resources as a working group of employees and volunteers; and
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25 accountability that requires NPO have to be transparent about financial accounts and
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27 resources to donors, investors, or regulatory agencies. According to Moxham (2009),
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29 trust and legitimacy are important features between NPO and their stakeholders. There
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31 has been increasing pressure by stakeholders for better accountability, especially when
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33 involving financial resources, such as donations. In this context, NPO have gone
34
35 through difficult and challenging times. Kong (2010) points out that taxes, fees,
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37 decreasing tax incentives, governmental problems, and economic crises are examples of
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39 the challenges and barriers that an NPO must face.

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42 For Moxham (2009) and Waal et al. (2011), there is no current answer for how to
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44 measure performance in NPO because the literature does not present a consensus about
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46 PM criteria. First, because there is not enough research conducted on PM System design
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48 for NPO. Second, it is difficult to measure performance results in NPO. Also, Arena et
49
50 al. (2015) give other reasons that can be attributed to the lack of financial, human and
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52 technological resources for PM System design and implementation.
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3 Waal (2007) describes a PM System as a set of processes that transforms mission,
4 strategy and organizational goals into key measurable performance indicators that
5 govern organizational actions. This aligns with Bourne et al. (2003) who state that PM
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7 Systems can be seen as a multi-dimensional set of performance measures for planning
8 and managing a business. Developing this further, Silvi et al. (2015) suggest PM
9 System is considered strategic when it embeds characteristics for long and short term
10 planning, financial and non-financial indicators, future perspectives, internal and
11 external viewpoints and includes causes and effects of relations between measures and
12 system aspects.
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22 Ospina et al. (2002) recognize that the majority of the tools and models for performance
23 management have been developed in for-profit companies. However, a PM System
24 would be useful to nonprofit organizations as well. For Austin (2000), the number of
25 nonprofit organizations is increasing, especially because of the growing number of
26 complex social problems that need to be addressed. Also, political issues, legal
27 obligations, and stakeholders' requirements have prompted some nonprofit
28 organizations to apply entrepreneurial strategies and business models to become more
29 competitive and transparent.
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39 According to Waal et al. (2011), implementing and using PM systems in the nonprofit
40 sector is more challenging, as there is a relative lack of clarity in the purpose of the
41 system in this kind of organization. Although there are many options of PM systems,
42 few of them are designed for NPO. Usually, the available frameworks for NPO are
43 adapted from the for-profit organizations, but they do not consider all their
44 characteristics. They point out that various public agencies work with some PM
45 Systems, but they fail to use them for decision making.
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3 Some examples of frameworks adapted for NPO can be cited. First, Lee and Moon
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5 (2008) suggested “a BSC model of social enterprises in which social objectives are
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7 attained as a result of interrelationships between four perspectives; financial, customers
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9 (stakeholders), internal business process, and learning and growth”. The work of these
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11 authors focuses on how the BSC can be used in the context of a NPO. Also, Meadows
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13 and Pike (2009, p.133) propose a Social Enterprise Scorecard based on adapting BSC
14
15 “to make it more applicable to social enterprises”. They argue that “the scorecard needs
16
17 to take a holistic view of organisational life, and of the perspectives of a diverse group
18
19 of stakeholders. Social return is the prime concern for social enterprises, and must be
20
21 emphasized”. Somers (2005, p.48) proposes a Social Enterprise Balanced Scorecard
22
23 (SEBC) and “to amend the original Kaplan and Norton Balanced Scorecard three
24
25 changes were introduced: an additional layer was added in which social goals are
26
27 articulated above the financial perspective; the financial perspective was broadened to
28
29 focus on sustainability; and the customer perspective was widened to capture a larger
30
31 number of stakeholder groups”. Arena et al. (2015) propose a generic model for a Social
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33 Enterprise (SE) developing a PM System. The study “identifies what measurement
34
35 dimensions are relevant for a SE (financial sustainability, efficiency, effectiveness,
36
37 impact)”. Sowa et al. (2004) propose a model for NPO that considers the organizational
38
39 effectiveness, named MIMNOE (Multidimensional and Integrated Model of Nonprofit
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41 Organizational Effectiveness) that “captures two distinct levels or dimensions of
42
43 effectiveness - management effectiveness and program effectiveness. Both management
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45 and program effectiveness are decomposed further into two subcomponents: capacity
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47 and outcomes”. Micheli and Kennerley (2005) investigated the adaptations of existing
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49 frameworks and case studies in NPO. Some examples of their findings are adaptations
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51 from the system theory, quality management, BSC, performance prism and the
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3 “Singapore quality award (SQA) model of business excellence with the BSC approach”
4
5 (Micheli and Kennerley 2005, p.129). Furthermore, it is recognized that factors such as
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7 the lack of training, infrastructure and flow of information hinder the effectiveness of a
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9 PM system in this type of organization (Strang, 2018, Micheli and Kennerley, 2005,
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11 Moxham, 2009, 2014).

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13 From this discussion, it is apparent that there is still some ground to be covered until a
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15 complete comprehension of the working details of PMS for NPO is achieved. In
16
17 particular, guidelines for design, implementation and use of PM systems for NPO must
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19 be identified and provided because their structure must be designed to be complex, in-
20
21 depth, able to include all organizational characteristics and for flexible interface
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23 considering the social goals and the management style (Micheli and Kennerley, 2005,
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25 Peurse et al., 1995).

26 27 28 29 30 31 **Research Design**

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33 This paper aims at proposing a meta framework that organizes the main research topics
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35 related to PM systems in nonprofit organizations and a framework to consolidate factors
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37 that influence the design and implementation of PM systems in nonprofit organizations.
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39 First, the systematic literature review method is selected to map the body of knowledge
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41 of this field of study. Next, bibliometric, network and content analysis techniques are
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43 applied to describe current research themes and extract current information that could
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45 be used in the development of both frameworks.

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47 To achieve this purpose, the research design of this work is organized in 3 main steps:
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49 (1) the systematic literature review; (2) the application of bibliometric, network and
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51 content analyses techniques; (3) the proposal of both frameworks. Figure 1 illustrates all
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53 these steps, related activities, and the achieved results.
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Figure 1 - Research Design

In the first step, the method of systematic literature review is applied to map the body of knowledge of this field and to generate significant information about PM systems in nonprofit organizations. According to Tranfield et al. (2003), this method can provide a comprehensive map of the body of knowledge for a specific field. In general, a systematic literature review supports and underpins the beginning of new academic research, since knowledge generated about this area could be mapped. Thus, it is particularly useful in exploratory research about incipient fields.

A set of procedures to guide the application of systematic literature review are chosen, and these procedures can be iterative and are organized in stages. The first stage is the problem definition, and it is described by the following research question: "What are the factors that influence the design and implementation processes of performance measurement systems in nonprofit organizations?".

In the second stage, the scoping study, the researcher performs simple searches in databases and tests the search terms with simple Boolean phrases. In the current research, search terms in papers about PM systems in nonprofit organizations were identified. The research question theme was used to determine the search terms of interest:

- Factors that influence the design and implementation;
- Performance Measurement Systems;
- Nonprofit Organizations.

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3 A set of 20 papers is used a thematic reference for the scoping study, that is, to refine
4 the search string. After this activity, search terms are identified through keywords from
5 this paper set. In the next stage, search strategy, the terms from these 20 papers are
6 searched in a database. As an iterative procedure, all papers from the control set are
7 read in detail, and new search terms are identified. Eleven combinations of terms are
8 tested resulting in 5 groups of search terms to compose the scoping study, presented in
9 Figure 2.
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20 Figure 2 - Groups of search terms
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24 The terms and synonyms are identified and tested. Also, the search terms are tested in
25 scientific databases to improve the use of advanced or expert search syntax that
26 supported the search strategy. The group of search terms supported the search strategy
27 and then, they are applied to the Literature Review Protocol shown in Table 1, which
28 contains search terms approved with the defined Boolean operators, chosen databases,
29 language and publication type. The AND boolean operator is used between groups of
30 terms, resulting only in the selection of papers that were related to at least one search
31 term of each group. This way, many papers that are related to performance
32 measurement, but did not cover the discussion of factors that influence design and
33 implementation excluded of the search.
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45 Table 1 - Literature review protocol
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49 The next stages include data collection and exclusion criteria application. This search
50 for papers resulted in a set of 4,606 papers in the stage of data collection. All abstracts
51 of the retrieved papers were read, and only the papers that referred to nonprofit
52 organizations and performance measurement systems were kept in the paper set. A total
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3 of 310 papers are selected after the exclusion criteria application. Of these papers, 70
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5 are duplicates and are eliminated. This process resulted in a final paper set of 240
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7 papers.

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9 Following this, in the second step techniques such as bibliometric analysis and keyword
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11 network analysis were applied to describe current research topics related to this theme.
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13 This combination of techniques contributed to consolidate the findings and highlight the
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15 significance of the results.

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17 As suggested by Lacerda et al. (2012), the bibliometric analysis concept is based on the
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19 quantitative evaluation of certain parameters for a defined set of articles, such as their
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21 authors, references, citations, and journals. The bibliometric analysis seeks to identify
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23 what have being produced by the scientific community on a specific research area and
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25 to evaluate main trends. In order to achieve them, bibliometric techniques are used to
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27 describe current research themes through a quantitative approach.

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29 In a view to executing the bibliometric analysis, MC3R® software (FLUXO Business
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31 Automation, 2015) is used to organize all dataset information in reports and matrices.
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33 The MC3R® is a platform to support the development of systematic literature review.
34
35 The 240 papers are registered in the software, including data such as paper title, the
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37 publication year, the authors and their countries, keywords, publication journal, cited
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39 references, among other data.

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41 After that, all the dataset registered is revised to ensure that the information has been
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43 correctly registered. Finally, the software generated reports which enable the
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45 characterization of the paper set, including the distribution of paper set and cited
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47 references per year, publication journals, journals from references, in addition, the most
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49 frequent authors and their countries, the keywords, and the cited references and their
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3 The data registered in MC3R® software are also used to generate a keyword co-
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5 occurrence matrix. Then, UCINET® software are utilized to construct a network of
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7 keywords and obtain reports. The frequency of keywords associations is calculated to
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9 construct maps (strategic diagrams) that represent the major themes of the field under
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11 study, and relationships among them. Additionally, a k-core analysis is performed and
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13 represents a set of nodes that have connections to at least K other nodes in the set, and
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15 the second one represents the maximum number of nodes which have all possible ties
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17 present themselves (Borgatti et al., 2002).
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20 In the last step, all the findings related to bibliometric and network analyses are
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22 consolidated. Therefore, it is possible to propose a meta framework that organizes the
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24 main research topics of PM system in nonprofit organizations which can support future
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26 work and a framework to consolidate factors that influence the design and the
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28 implementation of PM systems in nonprofit organizations.
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30 31 32 33 **Bibliometric and network analyses**

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35 The results of the bibliometric analysis are the paper set characterization, including
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37 distribution of papers and references, authors and their countries, cited authors,
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39 publications and journals, keywords analysis and cited references.
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42 The first set of analyses examined the distribution of the 240 papers from the portfolio
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44 per year of publication. There is a general increasing interest, since 2001, in the topic of
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46 nonprofit organizations and PM Systems. Afterward, a significant improvement is
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48 evident from 2007. Figure 3 shows an overview of the publications since 1985 until
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50 2015. These results provided insight into the extent of academic focus on Performance
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52 Measurement Systems in Nonprofit Organizations.
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Figure 3 - Distribution of papers in the set per year

Additionally, the distribution of the paper set analysis can be complemented with Figure 4, which shows the distribution of references. It is interesting to note a significant increase of references in the period between 2002 and 2004.

Figure 4 - Distribution of references cited by papers in the set per triennium

Furthermore, it is perceived that as the knowledge of this research area is becoming specialized, the cited references tend to be more recent. Thus, the gap between the published articles and the cited references is reduced. Also, the area becomes more professional and begins generating specific knowledge in this field.

Another significant result of the bibliometric analysis was the keyword analysis. Papers in the paper set provided 615 keywords. The present analysis considers only terms that are separately identified in the papers under the label of “keywords”. Forty-nine papers do not provide any keywords and, thus, were not included in this analysis.

Of the 615 keywords, there are 501 that appear just once. It means that 81% of the keywords proposed are cited only one time in the paper set. Table 2 presents the keywords which appear at least three times. In this group, there is a meaningful participation of terms usually related to PM systems, such as “performance measurement”, “performance management”, “balanced scorecard”, “performance”, “evaluation” and “accountability”. This fact may suggest that PM systems are on the research agenda of nonprofit organizations. Other keywords of this group, for instance, “social enterprise” and “social entrepreneurship” are used to define what type of nonprofit organization is addressed in the paper.

Table 2 - Most frequent keywords

The terms “balanced scorecard”, “evaluation” and “accountability” are among the top 10 cited keywords indicating that they are closely related to research associated with PM in nonprofit organizations. The term "accountability", for example, show the concern about stakeholders’ requirements as legal obligations to provide financial and management reports. Accountability can contribute to reach new investments and donors, in addition to providing information and legitimacy for funding and regulatory agencies.

The term “SROI (Social Return on Investment)” appears as a new term and it indicates a performance measurement tool adapted for nonprofit organizations to demonstrate the social and economic impact that they generate.

The results obtained as “accountability”, “leadership”, “social impact”, “efficiency”, and “quality” represent important findings and they indicate significant factors that influence Performance Measurement. Some countries appear, “United Kingdom”, “England”, and “New Zealand” as countries that have a significant number of studies about nonprofit organizations and performance measurement systems. Additionally, “case study” and “data envelopment analysis” can be identified as examples of methods used in this field. Then, a network of keywords was created using the UCINET® software (Borgatti et al. 2002).

Figure 5 shows the 7-core group network for the keywords from the documents in the paper set that appear at least three times. The size of each square indicates the frequency of each keyword. The thickness of the edges indicates the frequency with which two keywords were cited together (Okubo, 1997).

Figure 5 - 7core keywords network

These results are consistent with what is presented in Table 2, in which it is found that there is a meaningful participation of terms usually used with PM Systems in the keywords. The 7-core group is the most expressive of the network and includes the studies about performance measurement challenges in nonprofit organizations. Also, studies show frameworks proposed for balanced scorecard in nonprofit organizations. Despite the increased adoption of the balanced scorecard methodology by numerous business organizations during the last decade, limited case studies are developed concerning nonprofit organizations and their specificities (Grigoroudis et al., 2012).

An interesting finding is that the 7-core network also shows themes related to social aspects, as “social impact”, “social value”, “social entrepreneurship” and “SROI” for example. In the literature, Wilson and Bull (2013) used SROI in a small social enterprise for measuring social impact. Moreover, SROI is a framework for understanding and measuring the social, economic and environmental value of an organization’s activities with a focus on outcomes, different from other tools in placing a monetary value on the outcomes and benefits.

Furthermore, the keywords can be analyzed through time. In the papers from 1985 to 2003, the term “performance measurement” was the keyword that most appeared. Since 2007 to 2015, at least a paper per period has used “balanced scorecard” as a keyword. It is confirmed by Somers' (2005) suggestion that balanced scorecard can be adapted to social enterprise. Moreover, she details a Social Enterprise Balanced Scorecard (SEBS) and reported that by using this model, organizations become a better business and can demonstrate social value added to stakeholders.

Table 3 shows only the most frequent keywords by each period. It can be observed that “performance measurement”, “nonprofit organization” and “social enterprise” are the most frequent keywords in the last 10 years.

Table 3 - Most frequent keywords by period

Another type of analysis examined the authors and their countries. A total of 523 authors are present in the paper set and 33 of them authored 2 or more papers. So, 490 authors, representing 94% of the total, authored only one paper. This result shows that there is no single prominent representative author for the research area.

The two countries with more authors in the paper set are the USA with 151 authors followed by the United Kingdom (UK) with 98 authors, which represents 48% of the total authors by country. The next countries in number of authors are Australia and Italy, with 24 (5%) and 23 (4%) authors, respectively. Of the 33 authors with two or more papers, nine are from the United Kingdom and eight are from the United States of America (USA), encompassing 51% of authors with two or more papers.

The 6 top authors of the paper set (authors with 3 or more papers published) are presented in Table 4, including their country, institutional affiliation and research interests available in their universities' website and information about papers in the paper set. Also, the h-index is available for each author that is in the Scopus classification, which considers the number of papers and citations of the author.

Table 4 - Information for the top six authors in the paper set

Of these 6 top authors, 4 of them are affiliated to universities from the United Kingdom.

The 3 top authors, R. Andrews (United Kingdom), R.M. Walker (China) and G.A.

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3 Boyne (United Kingdom) have jointly authored papers together. Of the 4 papers from R.
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5 M. Walker and G.A. Boyne, 3 of them are authored with R. Andrews.

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7 Further analysis was conducted on cited authors. Papers in the paper set presented over
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9 13,000 authors in the cited references. Eighty-five of them were referenced more than
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11 ten times, and G.A. Boyne was the most cited author with 44 citations. Table 5 presents
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13 authors with 20 or more citations in the paper set.
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18 Table 5 - Ranking of authors in the paper set with 20 or more citations
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22 G.A. Boyne's papers have a focus in public administration and were published between
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24 1996 and 2011. The next four authors deal with different contexts. L. Salamon's papers
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26 address nonprofit organizations in general, public sector, third sector and social welfare
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28 organizations. R.M. Walker performs research on social welfare organizations,
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30 voluntary sector, and public organizations. R.S. Kaplan focuses on the Balanced
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32 Scorecard for any organization and the public sector. A. Neely's papers deal with
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34 performance measurement and management in general.
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38 The next analysis considers journal publications. Firstly, it is important to note that of
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40 the total of 136 publication journals of the papers in the set, "Voluntas: International
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42 Journal of Voluntary and Nonprofit Organizations" and "Administration in Social
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44 Work" are the most frequent ones with 15 and 12 papers respectively. Table 6 shows
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46 the top ten journals with five or more papers published including data on journal
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48 classification by SCImago Journal Rank that classifies journals in quartiles (Q1, Q2,
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50 Q3, and Q4) according to categories such as "public administration", "social work",
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52 "management information systems", "strategy and management", "health policy" and
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54 "earth-surface process".
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3 Moreover, Table 6 presents five journals in the first quartile (Q1) of the Scimago
4 Journal Rank and one that is not classified (n/a). These ten journals represent 32% of
5 the total journals in the paper set. Curiously, eight of them are journals with a public
6 administration or nonprofit subject as the focus of the journal. There is just one,
7 "International Journal of Productivity and Performance Management", which is a
8 journal that publishes papers related to performance management and measurement.
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18 Table 6 - Top ten journals from the papers in the paper set
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22 The results obtained from the publication journals for the papers in the paper set
23 analysis can be compared with the most frequent journals in the cited references. The
24 most frequent journal appearing in the references of the paper set is "Nonprofit and
25 Voluntary Sector Quarterly" with 166 appearances, which was the fifth most frequent
26 journal in Table 6 presented before.
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33 Furthermore, Table 7 shows the top ten journals from cited references with 87 or more
34 appearances, including data about journal classification by the Scimago Journal Rank,
35 that classifies journals in quartiles (Q1, Q2, Q3, and Q4) according to the categories
36 "public administration", "social work", "information systems and management",
37 "strategy and management", "social sciences" and "business, management and
38 accounting".
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48 Table 7 - Journals from references with major frequency
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3 Of the ten most frequent journals for the cited references, 5 of them have a focus in
4 public administration or nonprofit organizations, and 8 of them have high-level
5 classification (Q1) by Scimago.
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9 Finally, there are 10,540 cited references in the paper set. 9,136 of them, which
10 represents almost 87%, are cited just once. Table 8 shows the ten most cited references.
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12 The focus of the ten most cited papers seems to be “performance measurement”.
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14 Indeed, citations are mostly focused on two themes: “performance measurement
15 systems” and “management of nonprofit organization”.
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22 Table 8 - Most frequently cited references
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26 Some classic references on performance measurement, such as those from Kaplan and
27 Norton (1992 and 1996), are the most cited in the paper set. These references are also
28 some of the most popular when considering purely the field of performance
29 measurement (Neely, 2005). It is noteworthy that, although the topics of performance
30 measurement and nonprofit organizations are addressed, this paper is not a result of the
31 search, since it did not have keywords that addressed factors that influence the design
32 and the implementation of PM systems. Therefore, the knowledge of PM systems for
33 for-profit organizations seems to be used as a foundation for research on PM systems
34 for nonprofit organizations. Indeed, as observed by Arena et al. (2015), this confirms
35 what had already been pointed out: the simple adaptation of for-profit PM systems
36 approaches to nonprofit organizations appears not to be sufficient to address the
37 particular characteristics of nonprofit organizations.
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52 Two of the references in Table 8 discuss the difficulty of measurement effectiveness in
53 a nonprofit organization, Forbes (1998) and Herman and Renz (1997). The former
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3 reviewed empirical studies of nonprofit effectiveness from 1977 to 1997, while the
4 latter investigated stakeholder judgments of nonprofit charitable organization
5 effectiveness. According to Forbes (1998), there are several concepts of effectiveness in
6 nonprofit organizations used by researchers.
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11 Three of the references in Table 8 address performance measurement in a nonprofit
12 organization (Kaplan, 2001; Paton, 2003; Speckbacher, 2003). These works propose
13 options for adapting the balanced scorecard to a nonprofit organization and also suggest
14 that for-profit themes of performance management may apply to nonprofit
15 organizations.
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23 Another key point concerning the references is the theoretical background that is
24 employed. For this purpose, the sixty most cited references were analyzed and divided
25 into three main groups: (i) references that present general themes, (ii) references that
26 present specific themes that apply to nonprofit organizations, and (iii) references that
27 utilize both general and specific themes.
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34 92% of the references examined mention general themes, 68% highlight specific themes
35 that apply to nonprofit organizations, and 62% consider both of them. Then, Table 9
36 presents an analysis of the main themes identified. The most common background of
37 general themes is “balanced scorecard”, “performance measurement” and
38 “accountability”, which are the same themes that emerged in previous analyses. Also,
39 “institutional theory”, “theory of organization”, and “stakeholders” were also cited in
40 the building of the knowledge in this field.
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49 Lynch-Cerullo and Cooney (2011) examined the field-level pressures facing
50 humanitarian service organizations (HSO) and review the research on performance
51 measurement among nonprofit HSOs on responses to these pressures and proposed a
52 conceptual framework combining institutional theory and resource dependency theory.
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3 Additionally, the factors that encouraged performance measurement in nonprofit
4 organizations are examined.
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7 According to Herman and Renz (1999), many ideas first introduced and popularized in
8 business are later adopted by NPO, such as strategic planning, total quality
9 management, and others. In fact, the belief is that what works in business should also
10 work in nonprofit organizations or what is regarded as best practices is a sign of
11 effective management and could legitimize a nonprofit organization from a
12 stakeholder's perspective. Therefore, the study is based on general and specific
13 literature on organizational effectiveness to present theses about nonprofit organization
14 effectiveness. On the other hand, it can be seen from Table 9 that the number of specific
15 themes is significant.
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29 Table 9 - General and specific themes from most frequently cited references
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33 An outstanding example of this is the Multidimensional and Integrated Model of
34 Nonprofit Organizational Effectiveness (MIMNOE) proposed by Sowa et al. (2004),
35 which builds upon debates in organizational theory and nonprofit management research
36 and suggests a multidimensional model to capture nonprofit organizational
37 effectiveness.
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46 **Discussion**

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48 The bibliometric and network analysis highlighted the main characteristics of
49 performance measurement systems in nonprofit organizations research. In this section,
50 findings from works of the literature will be discussed. Figure 6 shows a meta
51 framework that organizes the main research topics of PM systems in nonprofit
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3 organizations. From the analysis of Figure 6, there are three main focus areas to be
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5 highlighted.

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9 Figure 6 - Meta Framework for PM systems

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13 The first one is related to the diversity of nonprofit organizations, of different types and
14 with different concerns regarding performance. Although all nonprofit organizations
15 seek the achievement of their social goals, each one has specific characteristics that
16 directly influence the design and implementation of performance measurement systems,
17 according to their strategic and operational context. Even public administration shares
18 some common characteristics, as it provides social value to citizens and cooperate with
19 nonprofit organizations for realizing its ultimate mission.

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28 The second one is the significant amount of works found in the systematic literature
29 review that are related to performance measurement in nonprofit organizations and that
30 make use of the general body of knowledge in performance measurement. This
31 knowledge is reflected through theories and models that are either adapted or are used
32 to build more specific models and theories to the context of nonprofit organizations.

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Finally, such theories and models are the building blocks for the factors that influence
different aspects of performance measurement systems. Factors are an applied reflection
of models and theories, making tangible the performance measurement needs of
nonprofit organizations and directly impacting the design and implementation of
performance measurement systems. These focus areas are detailed next.

Types of Nonprofit Organizations

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3 In the literature, a significant variety of terms reflects the different typologies of
4 nonprofit organizations and appears as prevalent topics, like “public organization”,
5 “third sector organization”, “non-governmental organization”, “civil society
6 organization”, “social enterprise”, “social entrepreneurship”, “voluntary organization”,
7 among others. These organizations have the social objective as a common goal,
8 although they have specific aims and it reflects the difficulty to have measures that
9 capture value across so many different organizations. Then, as mentioned by Moxham
10 (2009), there is not an agreement about the terminology to “nonprofit organizations”
11 what indicates that a charity institution is a kind of nonprofit but not all organization
12 have to be a charity organization. In this context, the sector is diversified including
13 religious institutions, hospitals, museums, voluntary agencies, trade unions, universities,
14 civil right groups, cooperatives, and third sector. Public administration appears in the
15 literature review, as according to some author it shares some characteristics with
16 nonprofit organizations as they play complementary and supplementary roles (Karwan
17 and Markland, 2006, Moxham, 2009, Valentinov, 2011).

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There is not a consensus about the NPO terminology and which kind of organization can be included as one. Some works, discuss NPO separated of the public sector or social enterprise (Karwan and Markland, 2006, Duque-Zuluaga and Schneider, 2008, Moxham, 2009). Also, as observed by Moxham (2009), some papers present the PM system discussion as advanced for public administration but not for NPO practice, as they consider relevant aspects that characterize an NPO and make them distinct from public sector.

For economic theories and models stand point, Moxham (2009) and Valentinov (2011) take an NPO as having financial restriction about the profit sharing for investors or controllers. Also, this kind of organization depends on of financing and donations. In

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3 this context, the requirements for these organizations may hinder the organizational
4 success. Because of this, as noted by Kong (2010), some NPO are pursuing partnerships
5 with private business and alternative sources of income. So, the innovation has been a
6 strategy for social value creation.
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11 The social enterprises or social entrepreneurship appear in this scenario as an alternative
12 for the NPO activities. This kind of organization has the social mission, but there are
13 not the restrictions on the use of business approaches for trade in products or services.
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15 Also, this kind of organization is more flexible than the traditional NPO because it can
16 be self-funded (Kong, 2010). So, it is necessary to know what are the characteristics of
17 an NPO, nomenclatures, and types of organization, and also which are the specificities
18 of each typology of an NPO and how it can be reflected in the design of PM system.
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28 *Models and Theories*

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31 Bibliometric, network and content analysis revealed that several PM theories and
32 models are used to construct knowledge in this field. Theories such as “economic
33 theory”, “institutional theory”, “organization theory”, “stakeholder theory”, “balanced
34 scorecard”, amongst others, are frequently used and cited to support research in this
35 area.
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42 Steinberg (2003) evaluated economic theories of the nonprofit sector to describe the
43 sector, formulate governmental policy towards the sector and manage nonprofit
44 organizations. Then, the study presented theories’ capacity to enlighten the
45 understanding of inquiry, size, and scope of the sector, and the behavioral responses of
46 donors, volunteers, paid staff, and nonprofit organizations to changes in their external
47 environment. According to Hansmann (1987), the economic theories of nonprofit
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3 organization appearing in the literature can be explained in two categories: theories of
4
5 the role of nonprofit institutions and theories of their behavior.
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7 According to Brignall and Modell's (2000) studies in the public sector, the institutional
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9 theory has implications for the effective implementation of multidimensional
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11 performance measurement and management. Additionally, a proper definition suggested
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13 by institutional theory is that performance should be described as 'institutionally'
14
15 defined, that is performance related factors determine the interests pursued by these
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17 organizations. Then, institutional theories indicate that a primary determinant of
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19 organizational structure is the pressure exercised by external and internal constituencies
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21 on the organization to comply to a set of expectations in order to gain legitimacy and so
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23 secure access to vital resources and long-term survival. This fact emphasizes the
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25 relevance to consider the organization dependence on multiples stakeholders.
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31 Herman and Renz (1999) studies draw from general and specific literature on
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33 organizational effectiveness to present propositions about nonprofit organizations
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35 effectiveness. They suggested that concerns about nonprofit organization accountability,
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37 outcomes assessment, and performance evaluation confirm the relevance of the
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39 discussions about nonprofit organizations effectiveness. Primarily, the definition of
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41 organization effectiveness focuses on the extent that an organization reaches its goals.
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44 Additionally, research on organizational theory has enabled the development of
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46 numerous models exploring organizational effectiveness. Since the increasing pressure
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48 on nonprofit organizations to demonstrate their impact on social issues for multiple
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50 stakeholders, questions of organizational effectiveness have become gradually more
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52 important in this research area. However, studies suggested that the characteristics of
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54 these organizations, such as their particular financial and legal status and their goals
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3 based on social values, are making the analysis of organizational effectiveness even
4 more complex. For Sowa et al. (2004), bearing in mind the organizational diversity, it is
5 important that these differences should lead to the appropriate criteria for assessing
6 effectiveness.
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11 As mentioned by LeRoux and Wright (2010), nonprofit organizations should use
12 accountability systems to approach outcome measurement and transparency. This
13 practice is generally established through reporting, auditing, and monitoring activities
14 that provide accountability to stakeholders and certify that resources are applied for the
15 specified purposes.
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22 As others studies have highlighted, Morley et al. (2011) report that nonprofit
23 organizations are being pressed to measure and report their outcomes frequently to
24 stakeholders. In their research, outcome measurement definition involves identification
25 of outcomes, development of indicators and data collection procedures, data analysis
26 and regular reports. It is interesting to note that nonprofit organizations are often
27 familiar with monitoring basic information, which does not help to measure how they
28 are achieving their social mission, helping target their public and the extent of their
29 social impact.
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39 The identification of these theories in previous studies confirmed that research in this
40 area builds upon general performance measurement research. Furthermore, as observed
41 by Luke et al. (2013), it is essential to note that the “balanced scorecard” is the most
42 cited model in the references and its importance is also concerned with the purpose of
43 ensuring assessment of organizational performance outcomes and impact, besides
44 legitimacy of communication.
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52 The balanced scorecard is a classic example of an adapted model from the general
53 performance measurement field to nonprofit organizations. Although the balanced
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3 scorecard is a strategic performance measurement and management tool designed for
4 commercial companies, several studies apply it in nonprofit organizations (Kaplan and
5 Norton, 1996). Also, the performance prism model is another example of performance
6 measurement tool used in the for-profit sector that has been adapted to nonprofit
7 organizations (Lee and Moon, 2008, Moxham, 2009, Meadows and Pike, 2010,
8 Mouchamps, 2014, Arena et al., 2015).

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11 Niven (2015) analyzes applications of the balanced scorecard in public and nonprofit
12 sectors and argues that it requires a system that not only measures inputs and outputs
13 but is also able to provide a link for evaluating progress in reaching the organization's
14 mission. Additionally, his research proposed a balanced scorecard model that applies to
15 public and nonprofit organizations, in which mission objectives are raised to the top of
16 the framework.

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19 Similarly, Somers (2005) suggests that the balanced scorecard needs to be adapted to
20 the social enterprise by including social goals, expanding the financial perspective to
21 emphasize sustainability and the customer perspective being widened to capture
22 multiple stakeholders' perspectives. Her research presents that by using the Social
23 Enterprise Balanced Scorecard (SEBS), organizations have positive outcomes and
24 become a better business. Also, social enterprises that use this model can demonstrate
25 social value added to stakeholders.

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28 Moreover, there is an accounting terminology being disseminated to more efficiently
29 evaluate and measure blended value creation in the third sector. Consequently, concepts
30 such as SROI (Social Return on Investment), social accounting and audit, Social Return
31 Ratio (SRR) were developed and reflect specific theories in this research area (Luke et
32 al., 2013, Moxham, 2009).

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3 Banke-Thomas et al. (2015) consider SROI as a model that has the capacity to measure
4 social and economic outcomes and analyzes views of different stakeholders in a
5 monetary ratio through comparison between net benefits to the investment required. In
6
7 other words, Wilson and Bull (2013) complement saying that SROI is a framework for
8 understanding and measuring the social, economic and environmental value of an
9 organization's activities. Another example is the Social Accounting and Audit, as
10 mentioned by Luke et al. (2013), which is an externally audited report of social value
11 creation.
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20 However, to many nonprofit managers, performance management systems adapted from
21 the private sector are seen with skepticism, as it is observed by Moxham (2009) and
22 Straub et al. (2010). In this context, Moxham (2009) investigates the applicability of the
23 existing body of knowledge about performance measurement in private and public
24 sector nonprofit organizations.
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30 It is noteworthy that the research about performance measurement systems in nonprofit
31 organizations is gradually becoming specialized and has started to build upon prior
32 research in the area. From this perspective, there are some examples of specific models
33 and theories about performance measurement systems in nonprofit organizations. An
34 example of a specific model for a nonprofit organization is the Multidimensional and
35 Integrated Model of Nonprofit Organizational Effectiveness (MIMNOE) proposed by
36 Sowa et al. (2004) and previously presented. This framework builds upon discussions in
37 organizational theory and nonprofit management research and suggests a
38 multidimensional model to capture nonprofit organizational effectiveness.
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52 *Factors that influence the design and implementation of PM systems*
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3 The main factors that influence the design and implementation of PM system for NPO
4 need to be identified. For Micheli and Kennerley (2005) the number of frameworks is
5 small yet so that investigations will be necessary for research area. Some tools and
6 methods have being developed, but as observed by Arena et al. (2015), the systematic
7 analysis is not enough. The PM system evolution was not capable of knowing all
8 various dimensions/factors about the performance in NPO. Understanding them will
9 contribute to translate the social issues in measurable terms.

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11 In this sense, Figure 7 depicts a framework that consolidates the main factors that
12 influence the design and implementation of performance measurement systems
13 identified in the systematic literature review performed in this work. Design factors
14 were grouped in three main categories: social factors, stakeholder-related factors and
15 managerial factors. Regarding implementation factors, as the literature is still in
16 evolution, only three factors, uncategorized were identified.

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33 Figure 7 - Framework for the factors that influence design and implementation of PM

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37 Factors in the social category represent the concern of nonprofit organizations in
38 achieving their social objectives and purposes. In this context, the measurement of
39 performance in NPO is dependent on their aims, mission, and goals (Clarkson, 1995,
40 Luke et al., 2013). For this reason, the social category, which includes “social value”,
41 “social impact” and “social mission” is a predominant topic in performance
42 measurement for NPO. Also, Luke et al. (2013) suggested that differently from for-
43 profit organizations that have profitability as a primary purpose, the underpinning
44 objective of this kind of organization is to be financially viable such that they can
45 continue to pursue their social mission. Furthermore, Costa et al. (2011) reported that
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3 long-term performance of nonprofit organizations concerns their capacity to expand
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5 social value as defined in their mission.

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7 Complementary, stakeholder-related factors reflect the importance of different groups
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9 of stakeholders to nonprofit organizations, particularly the necessity to fulfill their
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11 requirements. Cordery and Sinclair's (2013) literature review showed that NPO would
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13 pursue to use appropriate approaches to measuring and managing performance to attend
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15 to stakeholders interest and requirements. Mano (2013) indicates that NPO must present
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17 regular and reliable reports to stakeholders mainly on the reach of social goals within
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19 the restrictions of the funding and resources provided. In this regard, transparency to
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21 stakeholders, including measures of performance is also expected. According to Costa
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23 et al. (2011), nonprofit organizations have emerged as significant actors for promoting
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25 social values. This increasing importance and influence has heightened requirements for
26
27 more legitimacy and accountability, both internally and externally. In so doing,
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29 stakeholders can assess the impact of the activities developed by nonprofit
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31 organizations. Nevertheless, nonprofit "accountability" and performance measurement
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33 systems are usually more complex than those in for-profit companies, which focus on
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35 profit maximization and stockholders/shareholders as primary stakeholders. On the
36
37 other hand, nonprofit organizations have a socially-oriented and ethically-based mission
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39 and deal with multiple and competing stakeholder demands. Nonprofits' financial
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41 sustainability does not guarantee the achievement of the organizational mission and
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43 several studies suggest that there is a strong relationship between "market orientation"
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45 and organizational performance for nonprofit organizations (Duque-Zuluaga and
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47 Schneider, 2008, Walker et al., 2011).

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49 Factors in the managerial category reflect the concerns of nonprofit organizations to
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51 operationalize their activities so that their social objectives are fulfilled, as well as the
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3 requirements of their stakeholders. In this context, an important issue and prevalent
4 topic is the dependence of nonprofit organizations on “resources” and “funding”.
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6 Moreover, the competition for financial resources to fund nonprofit services is intense.
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8 As observed by Moxham (2010), the provision of funding is dramatically decreasing. In
9 the same vein, Kaplan (2001) emphasizes the theme of accountability and performance
10 measurement as urgent for nonprofit organizations due to the increasing competition for
11 “funding”. Consequently, as clearly stated by Hodge and Piccolo (2005), to secure
12 “funding”, nonprofits are under pressure to demonstrate “value for money”. In this
13 context, nonprofit organizations have a constant concern to measure their performance
14 to satisfy stakeholders’ expectations and consequently, to ensure their strategy in
15 approaching “funding” and “resources” allocation and utilization. Similarly,
16 “evaluation” is also a relevant topic and is directly related to “efficiency” and
17 “effectiveness”. NPO should have approaches to performance evaluation that
18 effectively capture both financial and social dimensions, which is crucial to demonstrate
19 organizational legitimacy, transparency, credibility and to acknowledge the extent of
20 their impact. According to Costa et al. (2011), because it is difficult to define clear key
21 success performance indicators in NPO, it is also challenging to identify systems that
22 are able to report to internal and external stakeholders on organizational “efficiency”
23 and “effectiveness” - in other words, the extent to which organizations achieve their
24 goals.

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26 As already mentioned, once implementation factors are still being studied, three
27 uncategorized factors were identified in the systematic literature review: “change
28 management”, “empowerment” and “leadership”.

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30 According to Bradshaw (2009), nonprofit boards have to implement change
31 management processes that can be used to orient them in reflecting on their choices
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3 related to governance frameworks, providing indication of what contingency factors
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5 should be taken into account. Basically change management strategies, as compiled by
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7 Herman and Renz (1998), could cover aspects such as legitimation, retrenchment, and
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9 new revenue strategies.

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11 Leadership could be approached in the support provided by the board of directors to
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13 both initiatives related to change, and the implementation of performance measurement
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15 systems. Harrison and Murray (2012) recognized that boards of directors have
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17 considerable impact on the performance of nonprofit organizations, their CEOs, and on
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19 the support of key stakeholders. Their leadership position could be used to build high-
20
21 quality relationships. Becker et al. (2011), shows that implementation of performance
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23 measurement systems required not only the technical system to be successful, but also
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25 the support of senior management, with a strong commitment to development and
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27 implementation that facilitates a higher level of ownership and accountability for all
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29 involved actors.

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33 Wellens and Jegers (2014) show that there is a consensus on the importance of an
34
35 employee-organization fit. Particularly to volunteers, empowerment, quality of intra-
36
37 organizational relationships and training and support seem to be important.
38
39 Employees' empowerment can be achieved through formal and informal mechanisms at
40
41 different levels, such as: personal job involvement and participation in overall
42
43 organizational policy-making. Wellens and Jegers (2016) also commented that
44
45 participation can be seen in a broader context as an instrument to empowerment and
46
47 emancipation.
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49
50 In summary, change management provided the meta framework for discussing
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52 performance measurement system implementation in nonprofit organization, that
53
54 requires leadership from the top level as well as from the team that is in charge of the
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3 implementation process. Empowerment will give the involved actors autonomy for
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5 experimenting and customizing models according to contingencies.
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9 **Conclusion**

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11 This research provided a comprehensive synthesis of the study of performance
12
13 measurement systems in nonprofit organizations through a systematic literature review,
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15 through bibliometric and network analyses. A paper set with 240 articles related to this
16
17 research field was examined. A large set of techniques are used to consolidate the
18
19 knowledge about this area of research. The present study makes several noteworthy
20
21 contributions to identifying the topics that are the most prevalent in this research area
22
23 and their interrelationships. Furthermore, the findings enhance understanding of the
24
25 extent that this area builds upon prior research. It is important to observe that public
26
27 administration are identified in the review, as they a complementary role in providing
28
29 social value to the society.
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33 According to the results, it is possible to conclude that the investigation on performance
34
35 measurement in nonprofit organizations is still in its early stages of development with
36
37 many opportunities to further develop the field. Although PM systems is a consolidated
38
39 topic, the design and implementation of PM systems in nonprofit organizations is a
40
41 recent issue, and public administration studies reveal more maturity in managing
42
43 through measures. Moreover, the results of this study suggest that, while there is
44
45 significant interest in this research area, there are still many inconsistencies in the
46
47 literature such as the terminology and the typologies used to refer to nonprofit
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49 organizations.
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53 It is decided to add a public administration perspective to the study as it is strong related
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55 to the studies of performance on nonprofit organizations, but take into account its
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3 deployment from nonprofit organizations studies. In this sense, the research theme
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5 encompasses some works on public administration as they share some common
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7 characteristics with nonprofit organizations.
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10 Additionally, PM Systems for nonprofit organizations seem to be more complex than
11
12 for for-profit companies, mainly because while the mission of for-profit companies is
13
14 primarily to focus on profit maximization, nonprofit organizations have an orientation
15
16 for social mission and values. Also, NPO have to deal with multiple stakeholders'
17
18 demands and its financial sustainability does not guarantee the achievement of the
19
20 organizational mission.
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23 Thus, PM Systems for nonprofit organizations should include not only organizational
24
25 viability but also the social impact of the organization. So, it is necessary that the
26
27 development of PM systems frameworks, tools, processes, requirements and indicators
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29 that address these specific features of nonprofit organizations, and also consider
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31 multiple stakeholder perspectives.
32

33
34 Conceptual frameworks and models, as well as specific theories are being generated for
35
36 this field of research, and the process of adapting models from the general field of
37
38 performance measurement is taking place. The meta-framework that organizes the main
39
40 research topics of PM system in nonprofit organizations and the framework that
41
42 consolidates factors that influence the design and the implementation of PM systems in
43
44 nonprofit organizations developed from the systematic literature review represent a
45
46 fundamental contribution to this field of study.
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49 While this review is designed to be as comprehensive as possible, the principal
50
51 limitation of this approach is that the results are limited to the publications available on
52
53 the searched platforms. As future work, it is recommended that a research agenda is
54
55 structured for PM systems in nonprofit organizations, which identifies the main research
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3 groups and the principal questions to be studied to contribute to the consolidation of
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5 research in this area of study. Besides that, the design and implementation factors
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7 identified in the systematic literature review and part of the framework presented in this
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9 paper need further detailing through both a more specific content analysis of the papers
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11 aimed at this objective, as well as the development and analysis of case studies that can
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13 consolidate the application of these factors in nonprofit organizations.
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Performance measurement in nonprofit organizations & public administration: A literature review

Figures

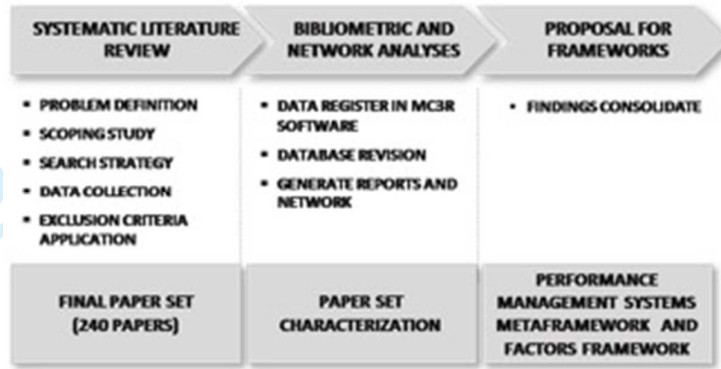


Figure 1: Research Design



Figure 2 - Groups of search terms

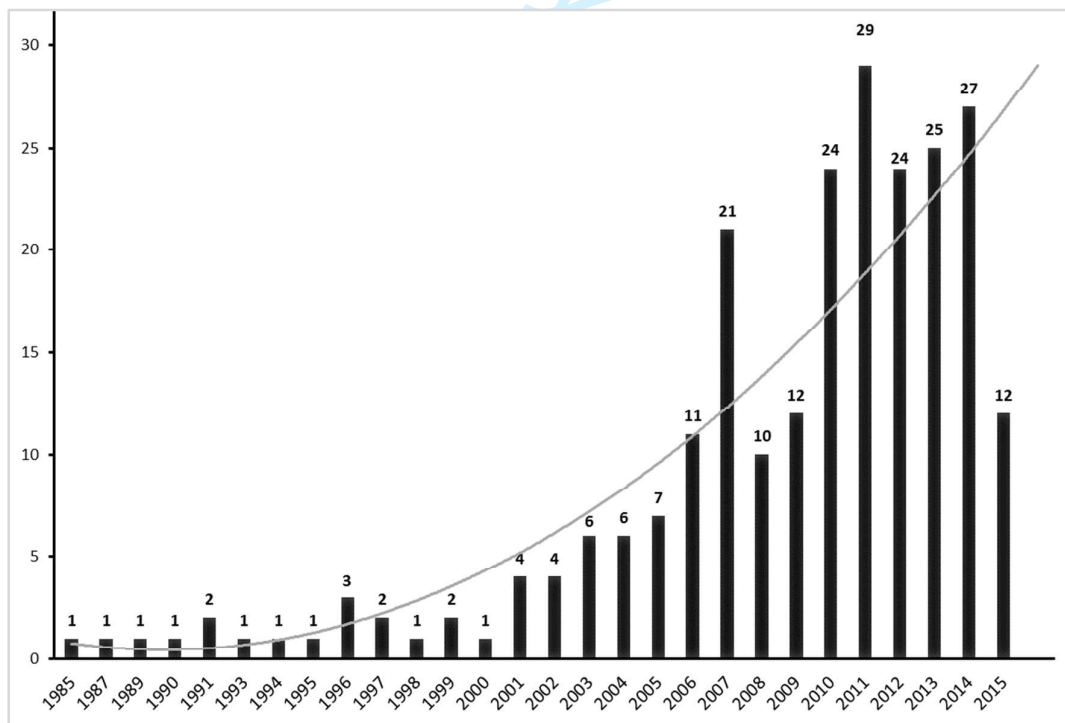


Figure 3 - Distribution of papers in the set per year

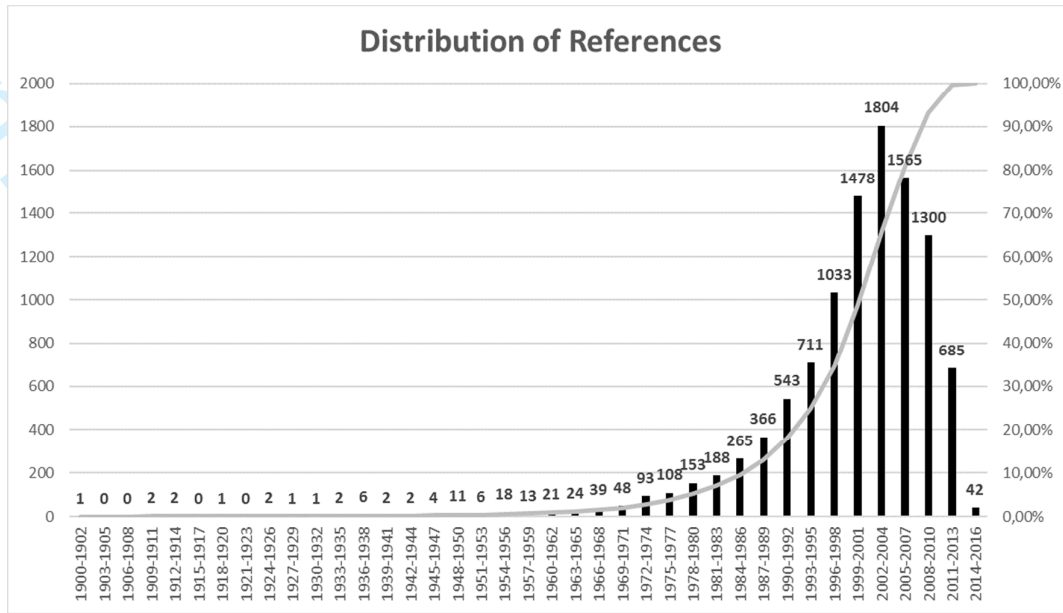


Figure 4 - Distribution of references cited by papers in the set per triennium

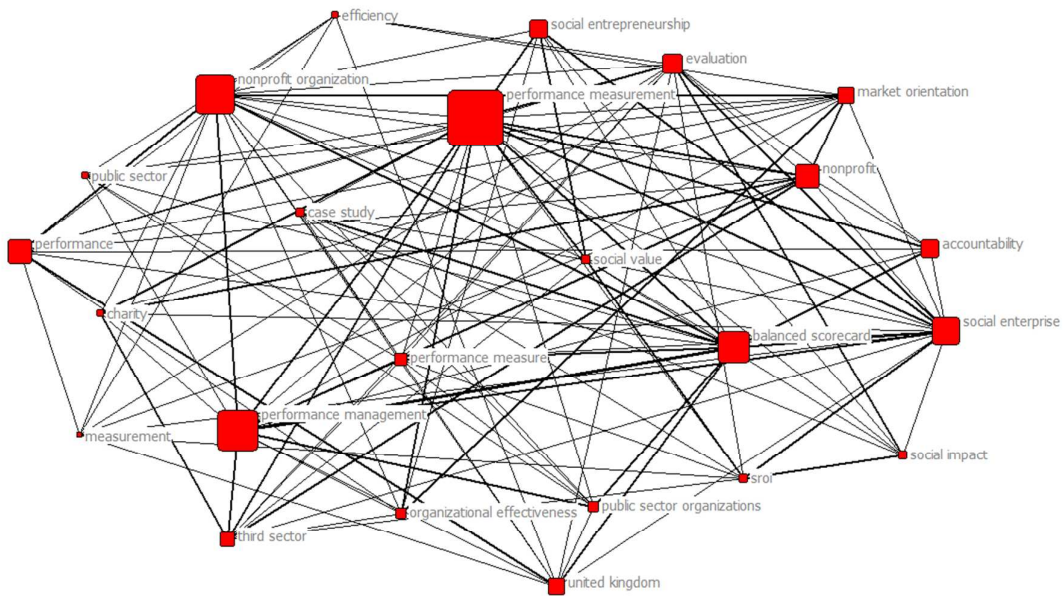


Figure 5 - 7 core keywords network

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Figure 6 - Meta Framework for PM systems

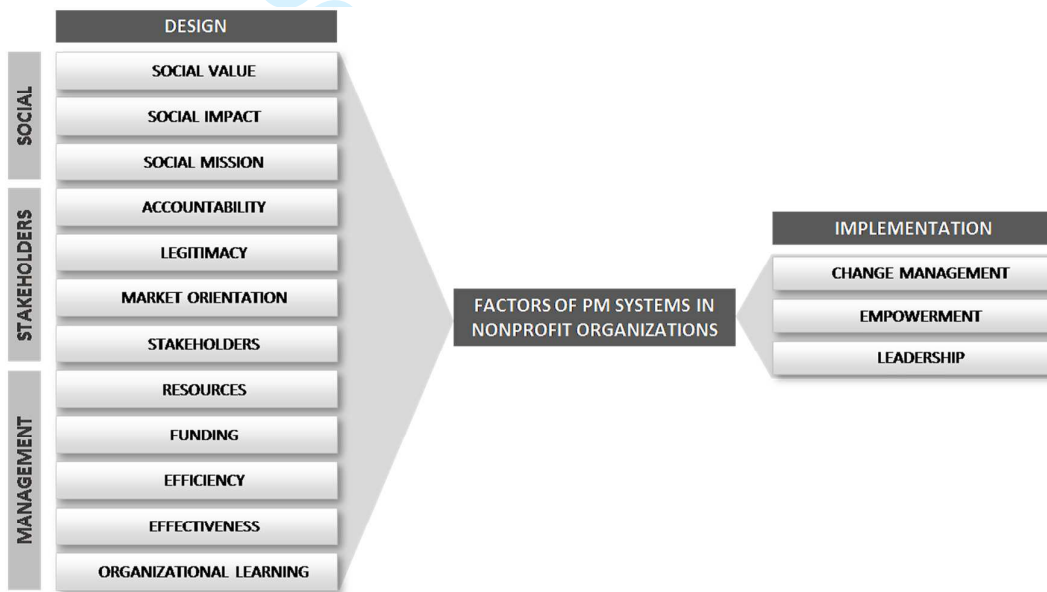


Figure 7 - Framework for the factors that influence design and implementation of PM

Performance measurement in nonprofit organizations & public administration: A literature review

Tables

Table 1 - Literature review protocol

Search Terms	<p>Group 1: "performance management" OR "performance measurement" OR "performance indicators" OR "organizational performance" OR "performance metric" OR "non-financial performance measures" OR "performance measurement system"</p> <p>Group 2: "non profit organizations" OR "non-profit organizations" OR "not-for-profit organizations" OR "not for profit organizations" OR "not-for-profit organisations" OR "Non profit organisations" OR "Non-profit organisations" OR "not for profit organisations" OR "non profit service" OR "non-profit service" OR "not-for-profit service" OR "not for profit service" OR "voluntary organizations" OR "human service organizations" OR "non-governmental organizations" OR "voluntary organizations" OR "human service organisations" OR "non-governmental organisations" OR "social enterprises" OR "ngo" OR "npo"</p> <p>Group 3: barriers OR challenges OR competences OR characteristics OR components OR enablers OR motivations OR obstacles OR requirement</p> <p>Group 4: approach OR design OR framework OR method OR methodology OR process OR roles OR capabilities</p> <p>Group 5: "social care" OR "social goals" OR "social outcomes" OR "social activities" OR "social value" OR "social entrepreneurship" OR "social structure" OR "social work"</p>
Boolean Operator	AND among groups
Database	Science Direct, Emerald, Taylor & Francis, Scopus, Springer, Wiley, ISI Web of Science, Proquest
Language	English
Publication Type	Academic Papers

Table 2 - Most frequent keywords

#	Keywords	Frequency	#	Keywords	Frequency
1	performance measurement	30	27	SROI	5
2	performance management	22	28	charity	4
3	nonprofit organization	21	29	data envelopment analysis	4
4	balanced scorecard	17	30	efficiency	4
5	social enterprise	15	31	government	4
6	nonprofit	13	32	health service	4
7	performance	13	33	local government	4
8	evaluation	11	34	public administration	4
9	accountability	10	35	public sector	4
10	social entrepreneurship	10	36	change management	3
11	market orientation	9	37	empowerment	3
12	United Kingdom	9	38	England	3
13	third sector	8	39	impact measurement	3
14	non-governmental organization	7	40	management	3
15	performance measure	7	41	measurement	3
16	leadership	6	42	new public management	3
17	organizational effectiveness	6	43	New Zealand	3
18	organizational performance	6	44	nonprofit accountability	3
19	outcome measurement	6	45	policy	3
20	public sector organizations	6	46	public sector reform	3
21	case study	5	47	quality	3
22	child welfare	5	48	strategic management	3
23	human service	5	49	The Netherlands	3
24	outcomes	5	50	transformational leadership	3
25	social impact	5	51	trust	3
26	social value	5			

Table 3 - Most frequent keywords by period

2015-2013		2012-2010		2009-2007	
performance measurement	14	nonprofit organization	12	balanced scorecard	5
social enterprise	8	performance measurement	11	nonprofit organization	5
performance management	7	performance management	9	performance	5
third sector	7	balanced scorecard	7	performance management	4
nonprofit	6	accountability	6	2006-2004	
performance	6	nonprofit	5	United Kingdom	3
Evaluation	5	social enterprise	5	2003-1985	
social entrepreneurship	5	social entrepreneurship	5	performance measurement	3

Table 4 - Information for the top six authors in the paper set

#	Author	# of Papers	Country	Affiliation	Period	Main themes	Research interests	h index
1	R. Andrews	6	United Kingdom	Cardiff University - Professor of Public Management: Cardiff Business School	2006 - 2011	Public sector; Performance	Strategic management, social capital and public service performance	17
2	R. M. Walker	4	China	City University of Hong Kong - Chair Professor of Public Management: Department of Public Policy	2006 - 2011	Public sector; Performance	Public management and performance; Management reform in Asia; Environmental methods; Sustainable development	28
3	G. A. Boyne	4	United Kingdom	Cardiff University - Pro Vice-Chancellor, College of Arts, Humanities and Social Sciences and Professor of Public Sector Management	2006 - 2011	Public sector; Performance	Explanation and evaluation of organizational performance in the public sector	43
4	B. McBeath	3	USA	Portland State University - Professor, Graduate School of Social Work	2006-2014	Child welfare; Organizational performance	Community-based practice; Organizational and management practice; Policy analysis; Human service model development	10
5	C. Moxham	3	United Kingdom	University of Liverpool - Senior Lecturer in Operations Management, Management School	2007-2014	Voluntary sector, Nonprofit organizations, Performance measurement;	Social sustainability; voluntary sector public service provision; measuring voluntary sector performance; socially sustainable supply chain management	5
6	M. Bull	3	United Kingdom	Manchester Metropolitan University – Senior Lecturer in Faculty of Business and Law	2006-2013	Social enterprise	Social enterprise: the challenges in the business model and balancing social and enterprise; the management practices of social enterprises; capturing and reporting social value in small social businesses	32

Table 5 - Ranking of authors in the paper set with 20 or more citations

#	Author	Frequency of citations by author	#	Author	Frequency of citations by author
1	G. A. Boyne	44	8	Organisation for Economic Co-operation and Development (OECD)	24
2	L. Salamon	37	9	D. P. Norton	22
3	R. M. Walker	35	10	Department of Health (UK)	21
4	R. S. Kaplan	34	11	The Audit Commission (UK)	21
5	A. Neely	25	12	J. Guthrie	20
6	K. J. Meier	25	13	H. P. Hatry	20
7	H. K. Anheier	24	14	L. J. O'Toole	20

Table 6 - Top ten journals from the papers in the paper set

#	Publication Journal	Quantity of papers published	SCImago	#	Publication Journal	Quantity of papers published	SCImago
1	Voluntas: International Journal of Voluntary and Nonprofit Organizations	15	Q2	6	Social Enterprise Journal	6	n/a
2	Administration in Social Work	12	Q3	7	Children and Youth Services Review	5	Q1
3	International Journal of Productivity and Performance Management	9	Q1	8	International Journal of Health Care Quality Assurance	5	Q3
4	Public Management Review	8	Q1	9	International Journal of Public Sector Management	5	Q2
5	Nonprofit and Voluntary Sector Quarterly	7	Q1	10	Public Administration Review	5	Q1

Table 7 - Journals from references with major frequency

#	Publication Journal	Quantity of references published	SCImago	#	Publication Journal	Quantity of references published	SCImago
1	Nonprofit and Voluntary Sector Quarterly	166	Q1	6	Administration in Social Work	89	Q3
2	Accounting, Organizations and Society	129	Q1	7	Administrative Science Quarterly	92	Q1
3	Public Administration Review	128	Q1	8	Journal of Public Administration Research and Theory	85	Q1
4	Nonprofit Management & Leadership	133	Q2	9	Strategic Management Journal	84	Q1
5	Academy of Management Journal	109	Q1	10	Academy of Management Review	82	Q1

Table 8 - Most frequently cited references

#	References	Authors	Year	Citations
1	The balanced scorecard - Measures that drive performance <i>Harvard Business Review</i> , 70, 1, 71-79	Kaplan, R. S.; Norton, D. P.	1992	28
2	The Balanced Scorecard – Translating Strategy into Action <i>Harvard Business School Press</i>	Kaplan, R. S.; Norton, D. P.	1996	25
3	Strategic Performance Measurement and Management in Nonprofit Organizations <i>Nonprofit Management & Leadership</i> , 11(3):353-370	Kaplan, R. S.	2001	24
4	Measuring the unmeasurable: Empirical studies of non-profit organization effectiveness <i>Nonprofit and Voluntary Sector Quarterly</i> , 27, 183-202	Forbes, D. P.	1998	19
5	The iron cage revisited: Institutional isomorphism and collective rationality in organization fields <i>The University of Chicago Press</i> , 63-82	DiMaggio, P.; Powell, W.	1991	18
6	Managing and Measuring Social Enterprises <i>Sage Publications</i>	Paton, R.	2003	17
7	Multiple Constituencies and the Social Construction of Nonprofit Organization Effectiveness <i>Nonprofit and Voluntary Sector Quarterly</i> , 26(2): 185-206	Herman, R. D.; Renz, D. O.	1997	15
8	The Economics of Performance Management in Nonprofit Organizations <i>Nonprofit Management & Leadership</i> , v.13, n.3 p.267-281	Speckbacher, G.	2003	15
9	Using the Balanced Scorecard as a Strategic Management System <i>Harvard Business Review</i> , 74 (1), 75-85	Kaplan, R. S.; Norton, D. P.	1996	15
10	Case Study Research: Design and Methods (2nd ed.) <i>Sage Publications</i>	Yin, R. K.	1994	15

Table 9 - General and specific themes from most frequently cited references

General Themes	Accountability, Balanced Scorecard, Economic theory of the firm, Funding, Institutional theory, Legitimacy, Management control theory, Management Practices, Management system, Market orientation, Neo-institutional theory, Organization Effectiveness, Organization theories, Organizational change, Organizational Effectiveness, Organizational Learning, Organizational performance, Organizational strategy, Outcome Measurement, Performance, Performance management, Performance measurement, Performance measurement systems, Performance Measures, Reporting, Resources, Stakeholders, Strategy, Theory of organization
Specific Themes	Categorization of nonprofit organizations, Charitable organizations, Environmental and social impacts, Human service organizations, Government sector, Multidimensional and integrated model of nonprofit organizational effectiveness (MIMNOE), Nongovernmental organizations (NGOs), Nonprofit organization (NPO) accountability, Nonprofit organizational effectiveness, Nonprofit organizations, Nonprofit sector, Public sector, Social audit, Social change, Social constructionism, Social enterprise, Social entrepreneurship, Social mission, Social performance, Social value, Social return on investment (SROI), Social sector, Third sector, Voluntary sector



Designing performance measurement systems in nonprofit organizations and public administrations

Journal:	<i>International Journal of Operations and Production Management</i>
Manuscript ID	IJOPM-08-2017-0469.R1
Manuscript Type:	Research Paper
Keywords:	Nonprofit organizations, Public administration, Performance management and measurement, Design

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Designing performance measurement systems in nonprofit organizations and public administration

Introduction

Nonprofit organizations (NPOs) or not-for-profit organizations are terms related to types of organizations with a financial management restriction that implies not sharing profit among stakeholders, even if they are owners, investors or financiers. However, such organizations may have positive financial results that are reinvested in its social goals. Hence, the NPO sector is extremely diversified, including universities, religious institutions, health care organizations, museums, charitable organizations, voluntary agencies, aid agencies, foundations, trade unions, civil right groups, cooperatives, social enterprises, humanitarian disaster relief agencies, and organizations of the third sector (Berenguer, 2015; Moxham, 2009; Valentinov, 2011).

These organizations share the same social purpose for their audience as the public organizations and, sometimes, NPOs work with local demands that local government are not capable of providing (Mehrotra & Verma, 2015; Sinuany-Stern & Sherman, 2014). In this perspective, both NPO and public administration share social responsibilities, but while NPOs usually work through projects, public administration works through a government or statutory plan. Sinuany-Stern & Sherman (2014, p. 5) argues that public organizations and NPOs are comparable in terms of optimizing performance measures, rather than maximizing profit, such as: “minimizing costs while maximizing service provided, managing risk and performance time, selecting preferred operating methods, and/or allocating resources effectively”. Berman (2014) cites some reasons for performance improvement in both kind of organizations as efficiency, effectiveness, avoidance of waste and fraud, source of motivation and professional satisfaction, external relations, management, volunteerism, marketing and fund-raising. Popovich (1998) indicates that high performance in those organizations refers to well-established mission and outcomes, focus on results, motivated human resources, flexibility and also there is a concern regarding performance and channels of communication with stakeholders.

Micheli & Kennerley (2005) observe that one of the most complex issues regarding NPOs and public administration is the management of stakeholders. Stakeholders' different expectations affect how they judge and attribute trust and credibility. In the users/clients' perspective, the organizational purpose is to meet collective needs of specific groups related to its social purpose. Meanwhile, financial restrictions imposed to NPOs affect resources availability and imply in financial dependence on donations, investments or subsidies by external stakeholders. Funders, donors or investors may require different kinds of reporting such as financial, performance, and social impact reports, to assess their investments (Ebrahim & Rangan, 2014). In this sense, the definition of performance indicators can be profoundly influenced by stakeholders' requirements and, sometimes, not express the exact measure of interest to managers, which makes it difficult to define the criteria for performance measurement.

In the performance management and measurement (PMM) research field, the applicability of performance measurement systems (PMS) in NPOs and public administration has been considered a challenge because of the necessary alignment among metrics, PMS requirements and social aspects, especially social goals and

mission (Ebrahim & Rangan, 2014). According to Micheli & Kennerley (2005), the identification of the public administration's and NPO's characteristics is crucial to an accurate design of a PMS. Besides that, the diversity of NPOs makes it difficult to define proper terminology and organizational characteristics, which in turn create a complex and subjective context for designing a PMS with all its particularities. Also, along the years, NPOs have professionalized their management, and legitimacy and accountability requirements have demanded high levels of efficiency and effectiveness (Kong, 2010a).

Usually, available frameworks for PMM were adapted from for-profit models, particularly their application in public organizations and other kinds of NPOs, but without considering their particularities. One of the most widespread frameworks in the literature is the Balanced Scorecard (BSC), developed by Robert Kaplan and David Norton and introduced in 1992 (Kaplan & Norton, 1992). Even with the development of other PMS or frameworks since then, BSC is still the mainstream approach and widely applied (Lee & Moon, 2008; Somers, 2005). During the advancement of research about PMSs, BSC was also considered and applied in the public sector. According to Hoque (2014), 23 papers were published about the public sector between the years 1992 and 2011. Other adapted frameworks for NPOs and public administration are also cited in the literature, such as the Performance Prism (Neely, Adams, & Crowe, 2001).

The process of designing or re-designing a PMS may be triggered by the intention to improve technologically, to provide innovation and increase usability (Kinder, 2012), but in many cases, because of the lack of positive evidence, there is no commitment or effort to provide human and financial resources for system design (Arena, Azzone, & Bengo, 2015). Besides that, adapted tools require more effort to reformulate, making the development of a new framework or tool more interesting (Mouchamps, 2014).

Despite of stakeholders' increasing pressure to report performance outcomes (Moxham, 2009), PMS evolution has not yet been able to capture all performance dimensions of a public administration or NPO considering its dynamics and multiple goals. Micheli & Kennerley (2005) argued that there is a lot of key features to be considered in a PMS design for NPO and public administration, such as "understand the analogies and differences between public, non-profit and private sectors [...], to identify all the stakeholders involved in public and non-profit organizations [...], the main constituencies of the model and cause-and-effect relationships between them should be identified [...]; Finally, guidelines for implementation and use will have to be provided". Also, it is necessary to fully understand their social aspects to represent them in measurable terms (Arena et al., 2015). The study about PMSs for social enterprises conducted by Mouchamps (2014) concluded that none of the PM models evaluated – BSC, GRI (Global Reporting Initiative) and SROI (Social Return of Investments) offered adequate features to their particularities.

Moxham (2014) performed a systematic literature review (SLR) about third sector organizations performance measurement system design and identified three drivers for performance measurement in third sector organizations collected in a review of 55 papers: accountability, legitimacy, and improvement of efficiency and effectiveness. In her findings, few papers study the design of performance measurement for the third sector, but guidelines to the measurement with the purpose of reporting outcomes and financial issues were found. Also, motivations for the use of PMSs are questioned.

Considering the gaps in the previously mentioned studies about the design of PMS in NPOs and public administration, the purpose of this paper is to provide a conceptual

1
2
3 framework that identifies and classifies the factors that influence the design of PMS in
4 NPOs and public administration. The study was developed through a SLR and a
5 complete listing of factors describing the amplitude of them was produced. In this way,
6 this paper enhances the knowledge about the motivations, drivers, barriers, or variables
7 as investigated by Moxham (2014) and the concerns as described by Micheli &
8 Kennerley (2005).

9
10 The results provide a multi-disciplinary and holistic set of factors. Ten factors that
11 influence the design of PMS in NPOs and public administration were found and
12 represent an advance to operations management in terms of understanding those
13 organizations through the lens of performance.

14
15 It is worth mentioning that the research design of this study was planned from a project
16 to identify the factors that influence the design and implementation of PMS for NPOs.
17 Criteria were established to search for articles to compose a research portfolio. During
18 the search process, articles that referred to public administration also appeared. This is a
19 result of their purpose in pursuing a social mission, rather than maximizing profit and
20 engaging in juridical characteristics, for example, not sharing any financial earnings
21 with investors or donors, such as an NPO. Because of this, both NPO and public
22 administration are studied in this paper. The outputs will show that the factors that can
23 influence the design of PMS in those organizations may be very similar and
24 comparable. These factors could be used both to design a PMS that has more balanced
25 measures, processes that are more aligned to organizational demands, and to diagnose
26 the existing PMS of an NPO and a public administration to analyze its suitability and
27 improve it.
28

29
30 Next section presents the theoretical background for this work, followed by the research
31 method used and the discussion of the factors. In the end, a conceptual framework
32 linking the factors is presented, followed by conclusions and perspectives for the further
33 development of this work.
34

35 **Theoretical Background**

36
37 The relation between operations strategy and the search for high-performance
38 organizations drive the latter to measure and manage their activities and outcomes by
39 developing PMM systems. According to Neely *et al.* (1996), performance measurement
40 is “the process of quantifying action, where measurement is the process of
41 quantification and action correlates with performance” and supports the performance
42 monitoring by managers (Poister *et al.*, 2014). As explained by Melnyk *et al.*, (2014,
43 p.175), “the performance measurement system encompasses the process (or processes)
44 for setting goals (developing the metric set) and collecting, analyzing, and interpreting
45 performance data”. However, the PMS is not enough for organizational management by
46 itself, but complements the performance management system.
47

48
49 In the same way, Schwartz & Deber (2016) explain that performance measurement is
50 input to its management, and its design can be conducted to identify where to make the
51 improvements. In this way, the concept of PMM is crucial to reach effectiveness and
52 efficiency. “PMM facilitates effective control and correction by reporting the current
53 level of performance, and comparing it with the desired level of performance (i.e., the
54 standard)” (Melnyk *et al.*, 2014, p. 173).

55
56 As an integrated system, a better understanding about each component of PMM is
57 necessary, i.e., the measurement and the management. According to Pinheiro de Lima *et*
58
59
60

1
2
3 al. (2013), the different roles of PMSs provide the increase of organizational
4 effectiveness and efficiency, contribute to strategy management, monitoring of results
5 and support performance management through goals such as:

6
7 “Produce positive change in organizational systems and processes”, “Develop a
8 continuous improvement capability through implementation and management of
9 an integrated operations strategic management system”, “Produce positive
10 change in organizational culture”, and “Provide a closer understanding of
11 market needs to create a perceived value for customers” (Pinheiro de Lima *et*
12 *al.*, 2013, p. 531).

13
14 Performance management consists in how a manager uses the performance
15 measurement to manage the organizational performance (Bititci, 2015). As explained by
16 (Melnik *et al.*, 2014, p. 175):

17
18 “the performance management system encompasses the process (or processes)
19 of assessing the differences between actual and desired outcomes, identifying
20 and flagging those differences that are critical (thereby warranting management
21 intervention), understanding if and why the deficiencies have taken place, and,
22 when necessary, introducing (and monitoring) corrective actions aimed at
23 closing the significant performance gaps.”

24
25
26 The two components of PMM work in an iterative process and, because of this,
27 performance measurement “has moved towards examining the organisation as a whole,
28 and impacting to a greater extent upon strategy” (Folan & Jim Browne, 2005, p. 674). In
29 this context, (Bititci, 2015, p. 27) argues that performance measurement refers to a
30 technical control, i.e. “the more rational, bureaucratic or ‘processy’ approach, focusing
31 on structural elements of the organisation” while performance management is a social
32 control, i.e. “the cultural and behavioural control achieved through personal interactions
33 between people”.

34
35 Bourne *et al.*, (2017) argue that the current paradigm of PMM is related to the control
36 systems perspective based on its approach to resources control and management.
37 Because of this, other studies were developed to align the performance measure
38 definition to the strategy and, in this way, PMM will be able to support making
39 decisions and strategic management control. Hourneaux Jr, Carneiro-da-Cunha, &
40 Corrêa (2017) developed a study to assess the use of PMM in small and large
41 organizations through the perspectives of monitoring and control, focus of attention to
42 provide the organizational communication, strategic making-decision, and legitimacy.
43 The results show that large organizations have more concern to use monitoring and
44 control indicators and this can be explained by their size and consequently complexity
45 and necessity of more levels of control.

46
47 Indeed, studies about PMM are being directed to address the complexities of
48 organizations in a dynamic environment over time. Yadav & Sagar (2013) categorize
49 the transitions of PMM in 3 phases: management accounting, financial perspective, and
50 integrative perspective linking strategy, quality, and excellence to the financial
51 perspective. The history of PMM begins in the early nineteenth century with
52 accounting-based performance measures, but around 1920s the return on investment
53 (ROI) and other frameworks were created in an attempt to improve the analysis through
54 financial ratios. A revolution in PMM is noticed through the BSC framework
55 introduced by Kaplan & Norton (1992) that go beyond financial measures and
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3 introduces operational and strategic performance measures. Since then, new frameworks
4 have been developed in an attempt to improve PMM. The Performance Prism assists
5 performance measurement selection and adopts a stakeholder perspective through 5
6 facets, allowing a long-term focus: “stakeholder satisfaction, stakeholder contribution,
7 strategies, capabilities and processes” (Yadav & Sagar, 2013, p. 958). With the New
8 Public Management framework, many public health systems have developed their own
9 PMM as a strategy of government reform to go beyond traditional measurement and
10 performance monitoring (Schwartz & Deber, 2016). Some PMSs were developed for
11 healthcare (Peursem, Lawrence, & Pratt, 1995) and for social enterprises, such as the
12 indicators map that considers three dimensions: economic and financial performance,
13 social effectiveness, and institutional legitimacy, developed by Bagnoli & Megali
14 (2011).
15

16 While new frameworks were developed and others were adapted, there is some
17 scepticism about their usability and feasibility in public and nonprofit environments
18 (Moxham, 2009; Sole & Schiuma, 2009). The SROI is a model for analysis of the value
19 created by an enterprise adapted from the ROI. Raus, Liu, & Kipp (2010) point that this
20 framework considers the social value, and financial/economic value, but not the
21 operational, and strategic/political value. About the Performance Prism, Micheli &
22 Kennerley (2005) argue that “evidence of the application of the performance prism in
23 the public and non-profit sectors is limited”.
24

25 The BSC is also an example of adaptation of a PMS framework originally conceived for
26 for-profit organizations to the context of NPOs, and its use is quite popular among for-
27 profit and in the public sector. The BSC considers four perspectives: financial,
28 customer, internal business processes, and learning and growth (Kaplan & Norton,
29 1996). However, Kaplan argues that NPOs also have specific performance measurement
30 demands, compete for donors, funders, and subsidies, and need a framework which
31 supports their characteristics (Kaplan, 2001). Although the BSC has the financial
32 perspective at the top of the scorecard, Kaplan agrees that the mission of those
33 organizations should be at the top and it “represents the accountability between it and
34 society - the rationale for its existence” (Kaplan, 2001, p. 360).
35

36 Even so, some studies point that the BSC is not so appropriate for the NPOs and public
37 administration context. Northcott & Taulapapa (2012) studied the BSC in the public
38 sector context identifying some limitations to its implementation related to the difficulty
39 to work with efficient causality relations (Kong, 2010a, p. 298), related BSC and
40 intellectual capital concepts to social service nonprofit organizations (SSNPOs) and
41 argues that:
42
43

44
45 Although the modified BSC has made a compelling case for the inclusion of
46 both financial and non-financial metrics in a strategic management system, the
47 model does not address important aspects of nonprofit strategy such as social
48 dimensions, human resource elements, political issues and the distinctive nature
49 of competition and collaboration in social service nonprofit settings (...) Thus
50 SSNPOs must place social dimensions at the centre of their strategy since these
51 are often the *raison d'être* of the organizations' existence in the society (italics
52 in original).
53

54
55 Arena, Azzone, & Bengo (2015) studied PMSs for social enterprises and argued that the
56 adoption of the BSC for this kind of organization does not provide a complete system,
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3 particularly considering their organizational characteristics, including their hybrid
4 nature. According to them, those adaptations do not present a consistent analysis of
5 social impact, multiplicity and interests of stakeholders, because these are complex
6 indicators that can be hard to be measured.

7
8 Research about PMSs is focused on their effectiveness and not in the understanding of
9 their design and implementation demands, without many options of PMSs being
10 academically studied for NPOs and public administration. According to Folan &
11 Browne (2005), many options of PMSs were developed as a mix of various PM
12 frameworks resulting from best practices analysed in companies. Also, for Silvi et al.
13 (2015) the adaptations made were focused on adding non-financial measures, however,
14 without the concern in organizational factors to characterize a PMS with a social focus.
15 Although studies try to describe or assess PMSs for those organizations, few attempts
16 were conducted for generic framework design/development for these organizations
17 (Micheli & Kennerley, 2005).

18
19 Besides the scepticism in the use of PMSs or PMM from traditional for-profit
20 enterprises, resistance to use them can be either internal or external. Sometimes there is
21 resistance from staff to use a new or complex software (Arvidson & Lyon, 2014;
22 Cordery & Sinclair, 2013). Yet some stakeholders have their own requirements and
23 because of this, NPOs and public administration must use what is acceptable by them
24 for accountability and legitimacy purposes (Amado & Santos, 2009; Arvidson & Lyon,
25 2014; Karwan & Markland, 2006).

26
27 The process to design or re-design a PMS may be undertaken by the intention to
28 improve technologically, to provide innovation and increase the usability (Kinder,
29 2012) but in many cases, because of the lack of positive evidence, there are no
30 commitment and effort to provide human and financial resources for system design
31 (Arena et al., 2015). In this way, some reasons can be indicated to encourage the use of
32 PMSs by these organizations. Waal & Kourtit (2013) summarizes the reasons for PMM
33 use for enterprises and some of them are strongly related to the NPOs and public
34 administration context: stronger accountability (related to legal obligations for
35 accountability that an NPO and public administration must provide), handling the
36 increase in complexity of the organization (related to the complexity of operations due
37 to alternative sources of income and financial restrictions), better description of mission,
38 strategy and goals (related to social mission and goals definition), and better
39 understanding of necessary knowledge and skills of people (related to employees and
40 especially volunteers). See Appendix A for full list of reasons.

41
42 The set of reasons to use PMS corroborates with the concern to provide an adequate and
43 useful system for these organizations and, therefore, the factors that influence their
44 design need to be identified and studied. This paper provides some answers to the gaps
45 identified in the PMM research literature, focusing in the performance measurement as
46 the first step to reach a complete PMM for NPOs and public administration, providing a
47 set of factors to be considered in PMS design from a SLR. The next section explains the
48 research design developed for the SLR.

51 52 **Research design**

53
54 The research design of this study was developed aiming at the identification of the
55 factors that influence the *design* and *implementation* of PMSs in NPOs. The research
56 design was developed in two phases: SLR and content analysis.

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3 Despite the importance of the literature review for research in general, scholars notice
4 that some reviews in the management field are more narrative and subjective, and
5 because of this, the SLR begins to be used offering a transparent and replicable process
6 that considers all relevant studies identified through a rigorous protocol (Andreini &
7 Bettinelli, 2017; Tranfield, Denyer, & Smart, 2003). In this sense, in Phase 1 of this
8 research, a SLR was carried out to identify works that addressed performance
9 measurement in NPOs through a comprehensive literature review using the approach
10 described by Keathley (2016) in a study about the factors that affect the successful
11 implementation of PMSs. The author argues that this model, besides the increased rigor,
12 also provides a method to identify all relevant publications. Figure 1 indicates the steps
13 developed in Phase 1, which are explained next.
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17

18 [FIGURE 1]
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23 *Problem definition:* the central question that guided the SLR, in the problem definition
24 stage, was "What are the factors that influence the design and the implementation of
25 PMS in NPOs?". Implementation factors were also considered (although not analysed in
26 this paper), as this was the extended scope of the overall research project in which this
27 study is included.
28

29 *Scoping study definition:* the search terms were established by iterative testing on the
30 platforms Science Direct, Taylor & Francis, Scopus, Springer, Wiley, ISI Web of
31 Science, and Proquest. Several categorizations of the search terms were tested to find
32 the best match. Five search terms groups were defined because they cover the literature
33 review goal and composed the scoping study stage: performance measurement;
34 nonprofit organizations; factors that influence performance measurement; design and
35 implementation of performance measurement systems; and social outcomes.
36

37 *Search strategy definition:* the search strategy encompassed the consideration of journal
38 papers in English published until December of 2017 and referenced in the following
39 platforms: Science Direct, Taylor & Francis, Scopus, Springer, Wiley, ISI Web of
40 Science, and Proquest. The overall search in these databases resulted in 6,325 papers.
41

42 *Exclusion criteria application:* the exclusion criteria application stage resulted in the
43 removal of duplicates and references without available full-text.
44

45 *Data collection:* in the data collection stage, the paper portfolio with the full text of
46 every reference was organized. Although not included as a search term, articles dealing
47 with public administration also appeared as a research result. Because of their purpose
48 in pursuing social mission instead of maximizing profit and their compliance with other
49 juridical characteristics, such as not sharing any sort of financial profit with investors,
50 donors, contributors or subsidiaries, similar to NPOs, the research team decided to
51 include those papers in the content analysis. Some studies can be cited to support this
52 decision as the study about NPO and public administration by Micheli & Kennerley
53 (2005, p. 126), in which they argue that the adapted frameworks are not enough for
54 those kinds of organization:
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3 In developing performance evaluation tools for these institutions, some attempts
4 have been made to adapt frameworks previously conceived for 'for-
5 profit' sector to public and non-profit organizations without really capturing
6 their peculiarities; on the other hand, while there are many articles about
7 specific indicators, no integrated framework exists that encompasses all the
8 aspects requiring evaluation.
9

10
11 In the book *Performance and Productivity in Public and Nonprofit Organizations*,
12 Berman (2014) indicates some performance challenges for those organizations. For
13 instance, improvement opportunities can be analysed for: "(1) better serving external
14 stakeholders' needs, (2) improving organizational effectiveness and using resources
15 efficiently, (3) improving project management, and (4) increasing productivity through
16 people" (Berman, 2014, p. 23).
17

18 It is worthwhile mentioning that the purpose of this study is not to say that both
19 organizations are identical, but to show in what aspects they are associated in the
20 perspective of the design of PMSs. For more examples of study about performance for
21 public sector and NPOs, see Poister, (2003); Sinuany-Stern & Sherman, (2014).
22

23 *Data analysis:* in the data analysis stage, each abstract was read and categorized
24 according to two criteria: the main paper theme should be related to public
25 administration, foundations or private institutions, associations, non-governmental
26 organizations, social enterprises; and the paper should cover performance studies:
27 performance measurement systems, performance indicators/measures, design,
28 implementation, use or review processes. A total of 245 papers were selected and
29 composed the final portfolio of papers. They were classified by type of organization
30 (public administration, foundations or private institutions, associations, non-
31 governmental organizations, social enterprises) and type of study in relation to
32 performance measurement (PMS, performance indicators, PMS design, PMS
33 implementation, PMS use, PMS review).
34

35 *Reporting:* the reporting stage was conducted through quantitative analysis performed
36 by the MC3R software (2015). All papers that were collected and categorized by the 2
37 criteria were included in this software.
38

39 Phase 2 of the research design refers to the content analysis that was conducted and
40 focused on identifying the factors that influence the *design* of performance
41 measurement systems in NPOs and public administration. Figure 2 shows the steps for
42 Phase 2. Because of the fact that some collected papers discussed design factors more
43 broadly while others had the objective to study them more deeply, a content analysis
44 was carried out to identify and synthesize the factors. The protocol was conceived
45 through an intensive study to capture all peculiarities about the design factors in the
46 papers. Some articles include the design study, but do not put it as its primary purpose.
47 Therefore, close attention was needed to accurately capture the relevant information.
48 The steps of Phase 2 are discussed next.
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53 [FIGURE 2]
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3 *Collecting design papers from the portfolio:* the portfolio was previously categorized in
4 Phase 1 and papers were already classified by type of organization (public sector,
5 foundations or private institutions, associations, non-governmental organizations, social
6 enterprises) and by type of study in relation to performance measurement (PMS,
7 performance indicators, PMS design, PMS implementation. From the 245 papers in the
8 portfolio, 29 of them refer to design of PMSs for NPOs or public administrations and
9 were intensely studied.

10
11 *Read and summarize papers:* all papers were read and summarized with the purpose of
12 identifying both the factors that influence the design of PMSs in NPOs and public
13 administrations and the key features and concepts described in the paper.

14
15 *Draw conceptual maps for each paper:* conceptual maps were drawn for every paper
16 with information about its purpose, type of organization studied, method applied, main
17 contributions and information about the identified factors. The arrangement of ideas or
18 theories in a concept map makes it easier to understand the ideas and link them to other
19 papers.

20
21 *Produce spreadsheets to distinguish the factors assigned by papers' authors:* the
22 research showed that there is no template in factors definitions. In fact, some words are
23 used to refer to a factor, such as motivations, drivers, barriers or variables. Following
24 the SLR in Phase 1, a spreadsheet was produced with the purpose of synthesizing the
25 factors assigned by each papers' authors.

26
27 *Define a terminology for the factor:* factors were coded in the record sheets. Following
28 the proposal of Keathley (2016, p. 96) to code the factors, the terminology was chosen
29 to be applicable over the studied organizations and "the factors were also coded in
30 neutral terms when possible to remove the positive or negative connotations". It is
31 worth noting that during the identification phase, factors related to implementation and
32 use of PMSs that needed to be addressed in the design phase were also considered.

33
34 *Synthesize the factors:* for all factors code in the last step, concepts were discussed by
35 the research team to synthesize them and standardize a terminology with its concept
36 through an iterative-inductive approach. A set of 10 unique factor codes were
37 summarized.

38
39 *Group the factors:* all factors were grouped by similarity in aspects related to purpose,
40 stakeholders, and management.

41
42 *Draw a conceptual model:* after synthesizing results, this paper presents ten factors that
43 were completely conceptualized. These factors are presented next, followed by a
44 conceptual model that links them.

45 46 **Findings**

47
48 This section presents a descriptive analysis of papers and journals of relevance from the
49 portfolio and the factors synthesis identified through the SLR and content analysis.

50 51 52 **Descriptive analysis of papers and journals**

53
54 The set of papers that include the discussion about the factors that influence the design
55 of PMSs in NPOs and public administration has 29 papers published in the period from
56 1998 to 2017 and represents the portfolio in this study. Appendix B1 presents the title,
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3 journal and year of each paper. Classification of the journal in the SCImago Journal
4 Rank is also provided for insight. The SCImago Journal Rank ranks the quality of
5 journals in quartiles Q1, Q2, Q3, and Q4, where Q1 is high quality and Q4 is lesser
6 quality, according to the subject area, that is also exhibited followed by the country of
7 journal publication.

8
9 Figure 3 shows the distribution of papers and journals by the classification of quartiles.
10 A set of 15 papers is classified in Q1, representing 52% of the total of papers (see blue
11 column in the graph), from 13 different journals (see orange column in the graph),
12 followed by 10 papers from 8 different journals in Q2. Curiously, almost all articles
13 classified in Q1 are from journals in the business, management and accounting area and
14 are not specific to a single sector, but include for-profit, NPOs, and public
15 administration publications. This output highlights the attention of operations
16 management and related research areas about the study of performance measurement in
17 NPOs and public administration.
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22 [FIGURE 3]
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26 The distribution by publication year in Figure 4 shows a recent concern about the
27 research area with 28 documents between 2008-2017.
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32 [FIGURE 4]
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37 Publications in UK journals concentrate the most substantial portion with 14 papers,
38 followed by publications from the United States of America with 8 papers, the
39 Netherlands with 3, and Switzerland and Australia with 1 paper each.
40

41 It is worthwhile mentioning that this study focuses on factors that influence the design
42 of PMSs for NPOs and public administration. In this way, the search terms defined in
43 the SLR restricted the data collected, and some relevant papers about performance
44 measurement in these kinds of organizations are not included in the portfolio because
45 they do not present sufficient data about design factors. However, it does not mean that
46 they are not studied and discussed in the analysis. In fact, they support the body of
47 knowledge for comprehension of the research area and the review of outputs.
48

49 Almost all papers adopt the case study method (76%), showing a concern of the
50 research area for understanding problems and demands from a practice standpoint.
51 Social enterprises are the most often cited organizations, in 30% of the papers, as shown
52 in Figure 5.
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[FIGURE 5]

According to Mehrotra & Verma (2015), the work of social enterprises with different sectors for social development is generally related to education, health, employment, welfare, and the environment. Innovation is a challenge, and their particularities and social demands by the community increase the necessity for accountability and efficiency (Arena et al., 2015; Mehrotra & Verma, 2015).

Factors synthesis

After application of the content analysis method previously described in the research design, factors that influence the design of PMSs in NPOs and public administration were collected in the SLR. As mentioned before, this study focuses on the research about factors that affect the design of PMSs for NPOs and public administration, and so, the findings synthesize an analysis from an intense study of the portfolio. Through an iterative-inductive approach, a set of 10 factors were coded and summarized to provide a unique and comprehensive analysis of the design of PMSs in NPOs and public administration.

There was not a standard terminology for the factors, which in different works were called motivations, drivers or barriers, among other terms. Because of this, the identified factors were grouped and synthesized with the objective to provide a complete concept and comprehensive nomenclature. During this process, some similarities were noticed and factors were divided into three groups: factors related to purpose, factors related to stakeholders, and factors related to management. The main aspects related to these groups are listed next:

- *Factors related to purpose:* one of the most important characteristics of NPOs and public administration is their non-financial mission. Social value creation is more important to those organizations than profit, and social impact reflects the capacity of an organization to realize its mission. The goals of NPOs and public administration are focused on social outcomes and are defined through the identification of social needs. The factor “social approach” in this group reflects these concerns.
- *Factors related to stakeholders:* factors related to stakeholders refer to stakeholder’s multiplicity and diversity (internal and external), requirements to accountability, and influence. Stakeholders have a complex involvement with NPOs and public administration. They are linked with those organizations through funding, local needs, partnerships, and other motivations. They can influence organizational decisions, including the definition of performance measures and are the judges of legitimacy of actions. The factors in this group are “accountability”, “legitimacy”, “involvement and influence of stakeholders”, and “volunteering”.
- *Factors related to management:* these factors are related to a set of different concerns regarding the operation of NPOs and public administration. These organizations have to manage the availability of resources coming from donors, funders, and public investment, whose amount and continuity is influenced by political and economic circumstances, political pressure, resources restrictions,

necessity of inter-local equity and other aspects. Organizational characteristics can also add to the complexity of operations in a public administration or NPO and influence measurement criteria, efficiency and effectiveness. This context makes long-term planning difficult and, depending on the situation, social impact can only be measured and assessed after some years. The search for continuous improvement can help organizational promotion and the establishment of a performance measurement culture. The factors in this group are “financial sustainability”, “short and long-term planning”, “fairness”, “effectiveness and efficiency”, and “strategic management control”.

Table 1 presents the synthesis and final concept of each factor identified in the content analysis process. The authors who addressed and discussed each factor are listed, together with the number of papers in which the factor was cited.

[TABLE 1]

Conceptual model and discussion

The conceptual model presented in Figure 6 shows the set of factors that influence the design of PMSs in NPOs and public administration and summarizes the identified literature. This figure represents the organizational context showing the set of factors that influence the design of PMSs.

[FIGURE 6]

In the centre of Figure 6 is the context of NPOs and public administration. Firstly, the managerial aspects involved in NPOs and the public administration context and the factors related to management are highlighted: “financial sustainability”, “short and long-term planning”, “fairness”, “effectiveness and efficiency”, and “strategic management control”. Similarly, as a traditional company, NPOs and public administration need a strategy to reach their social mission and social goals and this reflects on organizational management. Sometimes, there is a strong pressure for results, and there is an expectation of managing these organizations similarly to a regular business, with concerns to customer orientation, innovation, sustainability and efficiency (Kong, 2010b; Sillanpää, 2013). This situation is highly affected by resources to be provided by alternative financial sources such as donors, subsidies, funders, and investments that can be vulnerable to the political and economic situations, for example. Finally, managerial needs have to consider fairness, many times required by public organizations, and deal with the resistance to use the system towards learning and staff improvement. Sometimes there is resistance from staffs to use a new or complex software (Arvidson & Lyon, 2014; Cordery & Sinclair, 2013). Some stakeholders have

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2
3 their own requirements, so NPOs and public administration must comply to these
4 requirements for accountability and legitimacy purposes (Amado & Santos, 2009;
5 Arvidson & Lyon, 2014; Karwan & Markland, 2006).

6 Around the management context, factors related to stakeholders are highlighted:
7 “accountability”, “legitimacy”, “involvement and influence of stakeholders”, and
8 “volunteering”. Donors, public and private funders, the community, regulatory
9 agencies, tax authorities, beneficiaries, suppliers, partners, staff, multiple types of
10 beneficiaries, and volunteers are examples of the main kind of stakeholders that are
11 related to the context of NPOs and public administration. These stakeholders are
12 involved with such organizations through funding, definition of local needs,
13 partnerships, and other motivations (Conrad & Guven, 2012). Berenguer (2015)
14 explains that the multiplicity of stakeholders impacts in a complex supply chain
15 structure which makes it difficult to define performance metrics. Legal, financial and
16 performance reports, correspondence of accountability and the increase of legitimacy
17 are a critical aspect for these organizations because stakeholders usually require reports
18 in the short-term, but social value and the social impact usually take more time to be
19 perceived and measured (Lall, 2017; Moxham, 2009). As explained by Schiffing &
20 Piecyk (2014), PMSs should be designed and used to inform donors and other
21 stakeholders about performance metrics. Reports can help secure investments through
22 donations and grants in a highly competitive and dynamic market. Lastly, volunteering
23 represents the motivations and expectations of a particular kind of stakeholder in NPOs
24 and public administration, directly impacting its operations and results, and that,
25 because of this impact, deserves close attention (Duque-Zuluaga & Schneider, 2008).

26
27
28 Around the management’s and stakeholders’ aspects, there is the purpose of both NPOs
29 and public administration. Social aspects are important variables for those
30 organizations, characterizing its organizational purpose, reflecting longer term tangible
31 or intangible results that represent the effort to reach social mission and social value
32 creation (Sillanpää, 2013). Usually, social impact on a given society can only be
33 measured in the long-term (Drews, 2010). This situation represents a challenge to NPOs
34 and public administration in relation to their stakeholders, that have a direct interest in
35 social value creation (Cordery & Sinclair, 2013; Ebrahim & Rangan, 2014), particularly
36 considering accountability and legitimacy aspects (Arvidson & Lyon, 2014). Also, the
37 measurement of social impact is a complex task because it involves intangible results
38 and community interests, as well as the interpretation of unmeasured and unquantifiable
39 dimensions that represent social value (Lane & Casile, 2011).

40
41
42 The set of ten factors indicates the importance of this study for NPOs and public
43 administration and how complex a PMS can become in this context. This study
44 identifies, summarizes and conceptualizes these 10 factors that are particularly different
45 from the design aspects of PMSs in traditional for-profit organizations, and draws the
46 entire extent of these factors, linking them. No individual paper collected in the SLR
47 shows a similar organization of the factors as presented in this paper, considering the
48 different types of NPOs and public administration.

49
50 It is not the intention of this paper to provide the performance metrics or to draw a
51 framework to be used by organizations. The main goal is to provide a consistent list of
52 factors that must be analysed and assessed in the routine of an organization or in
53 academic research to design an adequate and useful PMS considering critical and
54 specific characteristics of NPOs and public administration. Some insights and practical
55 implications of the factors are shown in Table 2.
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[TABLE 2]

Results suggest that despite the increase in the number of studies about PMSs for NPO and public administration in the last decade, gaps can be identified and more investigation must be conducted, such as terminology discrepancies, the definition of kinds of NPOs, especially by the increase in number of social enterprises, design features of PMS for NPOs and public administration, unique characteristics that differentiate NPOs and public administration from a for-profit, and strategies to design a PMS that works iteratively with PMM to support organizational management and decision-making.

The outputs corroborate with Bourne et al., (2005) and Melnyk et al., (2014) that the use of PMS considering a turbulent and complex environment can be complicated to be delimited both for large organizations and for nonprofits. As Bourne et al., (2017) argue, some concerns have been raised in the investigation of adequate development and use of PMM. In a perspective of control management, the use of PMM as a tool for monitoring and control can only be harmful to learning. In this way, this paper indicates a concern to learning and continuous improvement through the study of the factor “strategic management control” that should be analysed and considered in the PMS design in the NPOs and public administration context. Also, the authors indicate a concern with the view of PMM as a tool for anticipating results because of the dynamic and constantly changing environment. This paper answers this matter through the investigation of the factors related to management, especially about “short and long-term planning” and “financial sustainability”, which are central issues in NPOs and public administrations so they are managed in a way to differentiate them from for-profit organizations, considering their nature and complexity.

Also, according to Berenguer (2015), it is a challenge to define a common performance metric to be used by all NPOs. They present some performance metrics for NPOs in the context of humanitarian relief in three capacities:

Input metrics refer to the time and the value of the resources needed to run the operation. *Output metrics* are related to the operation’s strategic goal and value the quantity, distribution or quality of product or service produced. Finally, *efficiency metrics* refer to the ability of producing maximum outputs with minimum inputs. (italics in original).

For the input metrics, the authors suggest metrics referred to costs, time, and donations. In outputs perspective, metrics are related to effectiveness, equity, equality, and social welfare. For efficiency metrics, described “as the ratio of output to total input” (Berenguer, 2015, p. 23), the authors suggest metrics to technical and allocative efficiency, flexibility, and sustainability.

In fact, all these proposed performance metrics support the understanding and confirm the conceptual model proposed in this paper. These metrics show that NPOs work in a

specific way that is different than for-profit organizations. For example, the metric related to donation is specific for nonprofit operations and is described as a factor that influence the design of PMS because it is related to the alternative sources of income needed to manage the financial sustainability of those organizations. For the outputs perspective, the metrics related to equity, equality and social welfare are also considered in the factors fairness and social approach.

Mouchamps (2014) analysed PMSs in the context of social enterprises and concluded that none of the studied current frameworks present enough features to address their particularities. The author defined seven normative criteria, and the BSC met two of them, the same amount as the GRI (Global Reporting Initiative), while SROI met three criteria. For the authors, it is not possible to summarize all social enterprise characteristics through the BSC dimensions. The GRI does not examine the mission as the main issue in of the framework and, in this way, it is impossible to link one of the most distinct features of an NPO, its social mission, into this model. The SROI could be adapted to incorporate more performance dimensions, but it would change its main feature of presenting only one ratio.

Findings of this paper prove the importance and necessity to study NPOs and public administration and distinguish them from for-profit organizations in performance measurement aspects. The study in this paper concurs with the gap in the research area indicated by Moxham (2009) in that many studies have been developed for PMS, but the research about the design of the system has still limited contributions. Studies about PMM need to be included in the operations management agenda (Straub, Koopman, & Mossel, 2010).

Conclusions

This paper describes the results of the content analysis study of references retrieved through a SLR. The study synthesized the literature and provided a conceptual framework of the factors that influence the design of PMSs in NPOs. Ten factors were identified and organized in three groups: factors related to purpose, factors related to stakeholders, and factors related to management. In the end, a framework is drawn from the analysis of these factors. Although the present paper's results are based on a systematic literature review, bibliometric analysis of the references used to perform the analysis shows that 76% of the studied papers used case studies and surveys as their methods, indicating the connection of results to practice.

A limiting factor in the development of the paper was the difficulty in identifying the factors. Different authors have been studying the design, implementation and use of performance measurement in NPOs and public administrations and mention drivers, motivations, barriers and other terms to refer to aspects that should be considered in PMSs, without employing a specific nomenclature. One of the main difficulties in this work was to understand how different authors referred to these aspects and identify them.

Future research should be conducted to improve the characterization of NPO and public administration in the performance perspective. Although they are not the same kind of organizations, they have similarities in terms of social purpose and financial restrictions. The SLR did not find any investigation that performs the same approach than shown here.

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3 The conceptual model presented can further assist practitioners in developing
4 performance measurement systems observing the role that the identified factors play.
5 For instance, factors related to purpose may inform the content of measures. Factors
6 related to stakeholders may inform the breadth of the system, whereas factors related to
7 management impact PMS processes.

8
9 The conceptual framework contributes to understanding the context of PMM for NPOs
10 and public administration in contrast to PMM for for-profit organizations. Findings also
11 identify factors that are unique in these organizations, contributing for the research area,
12 such as inter-local equity, volunteering and alternative sources of income, that seldom
13 appear in for-profit models. Understanding the differences between for-profit and NPOs
14 will surely contribute to the design of more consistent PMSs, that are aligned to the
15 organizational context of the environment in which an organization operates.
16
17

18 **Appendix A1**

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22 [APPENDIX A1]
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27 **Appendix B1**

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31 [APPENDIX B1]
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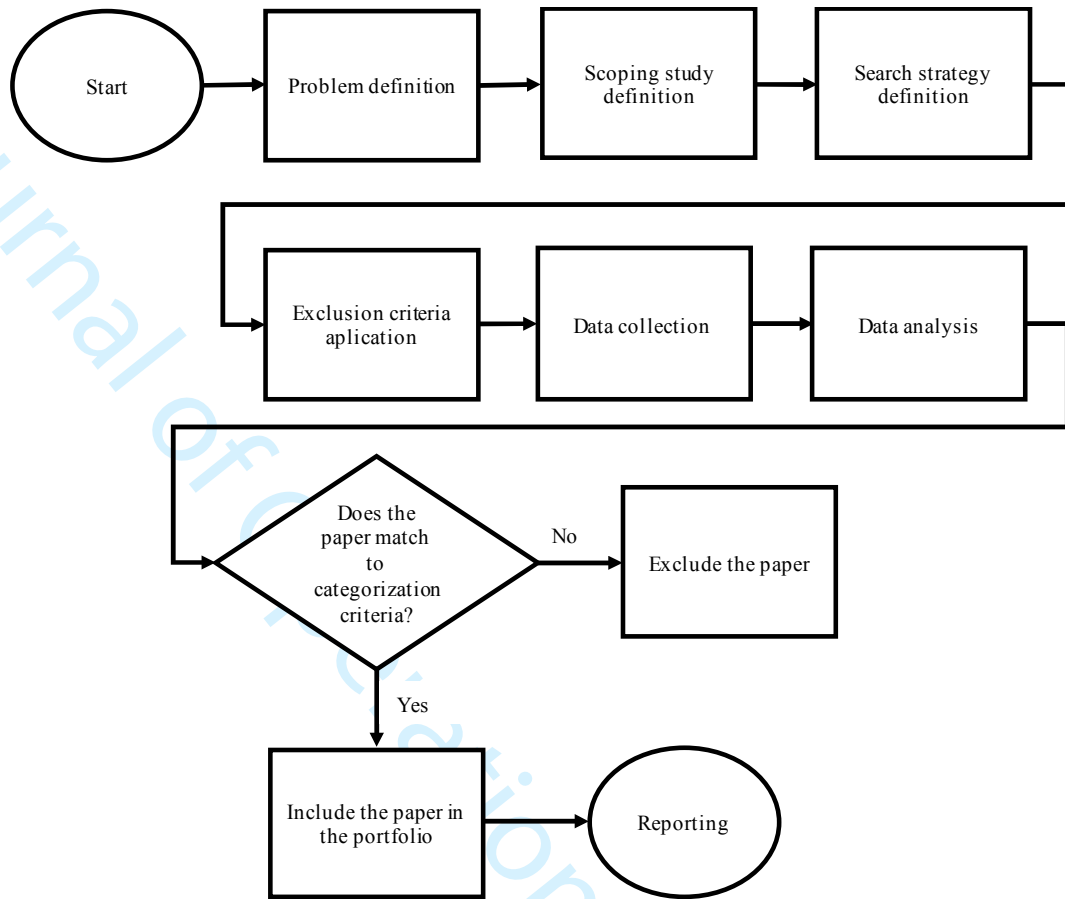
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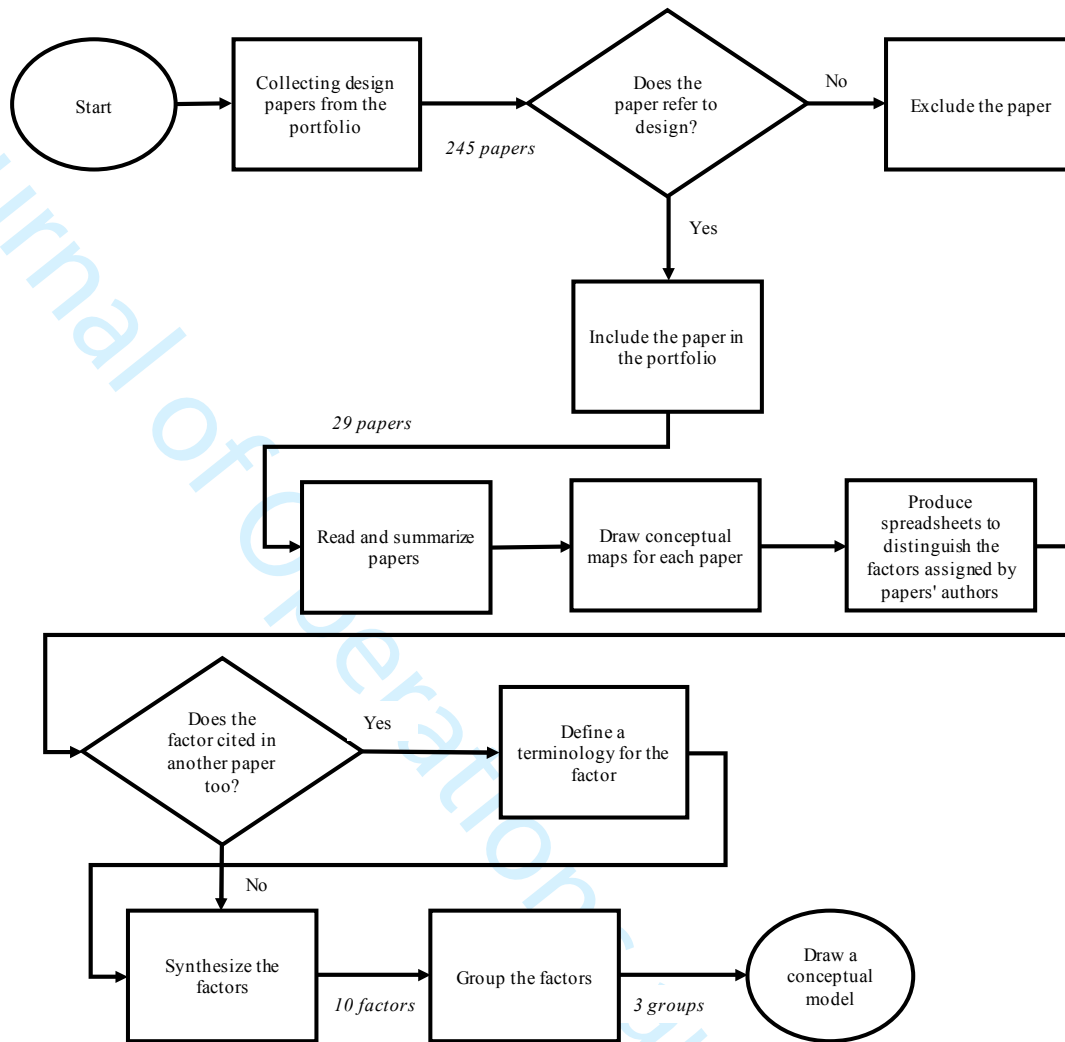
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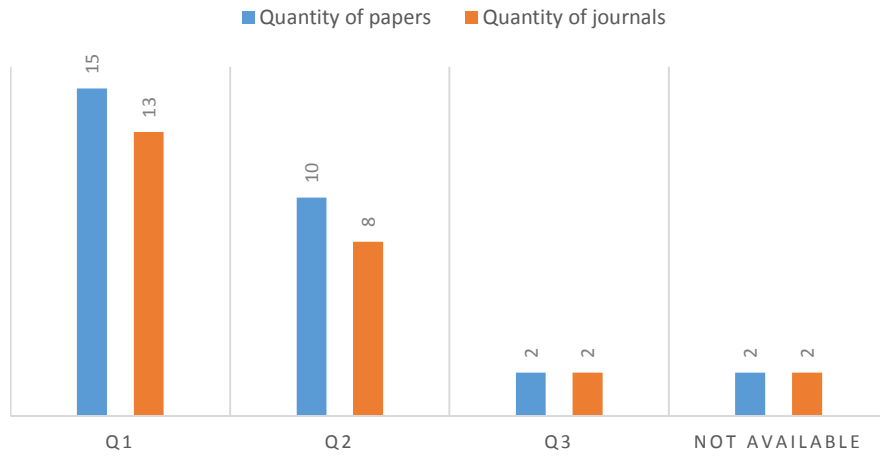
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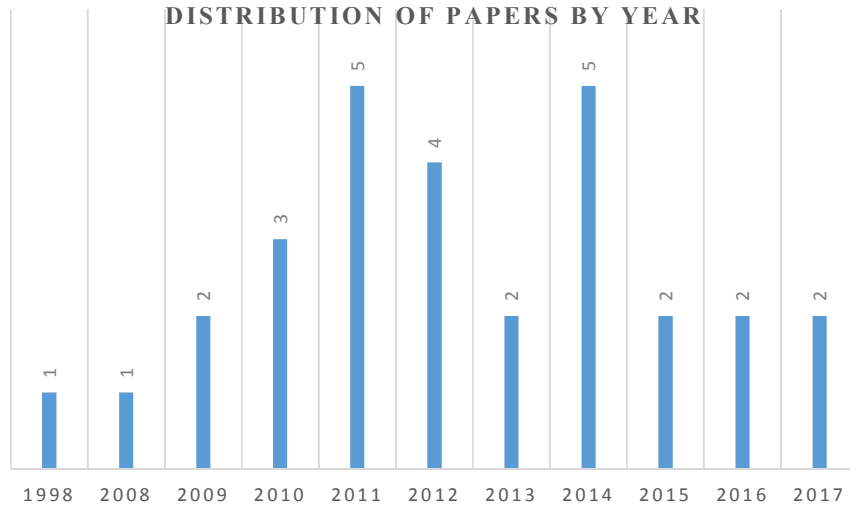


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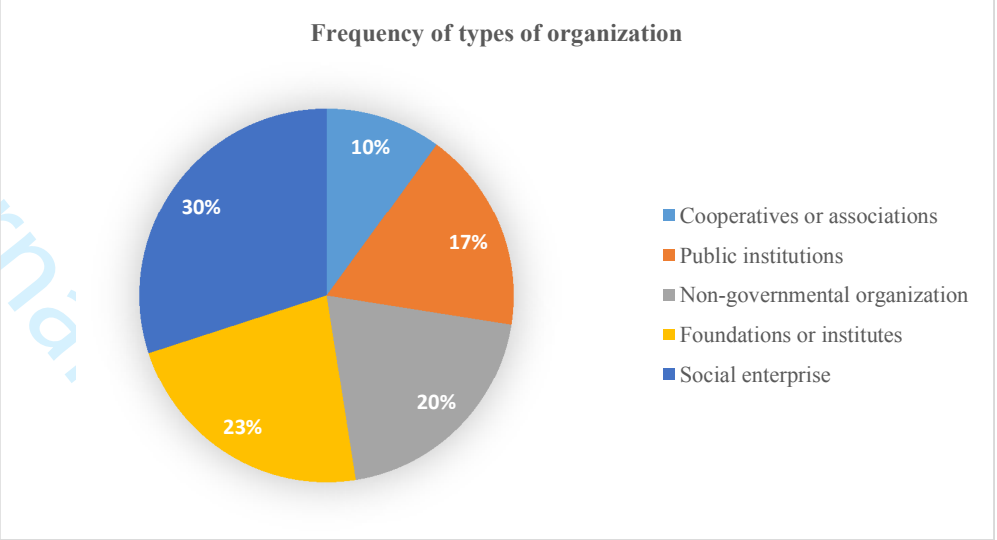


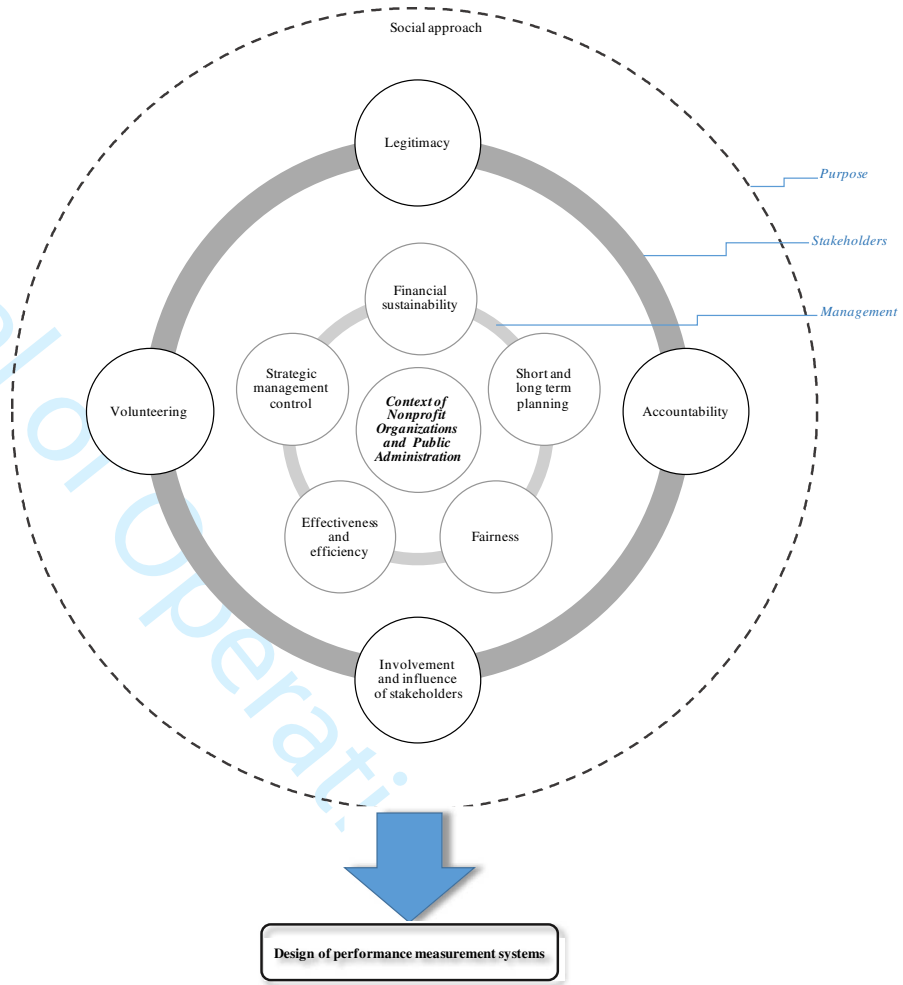
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International Journal of Operations and Production Management



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Table 1

Group	Factor	Concept	Authors	Number of papers
Purpose	Social approach	The description of social approach can be summarized in the key features involved in a public administration's and NPO's mission. The pursuit of social goals ahead of profit differentiates an NPO and public administration. The social value creation refers to the outcomes and tend to be intangible. The social impact will be intangible too, qualitative and its effect will be seen in long-term, i.e., the changes promoted by the organization as an improvement in the well-being of a patient or citizen. Although financial results sometimes do not show it, positive results through social value creation translates into social impact in the long-term, is an important index of the effectiveness and the capacity of these organizations to realize their mission.	Amado & Santos, 2009; Arena et al., 2015; Cordery & Sinclair, 2013; Drews, 2010; Duque-Zuluaga & Schneider, 2008; Ebrahim & Rangan, 2014; Grigoroudis, Orfanoudaki, & Zopounidis, 2012; Kroeger & Weber, 2014; Lane & Casile, 2011; Perrini, Vurro, & Costanzo, 2010; Sillanpää, 2013; Taylor & Taylor, 2014; van Overmeeren, Gruis, & Haffner, 2010	13
Stakeholders	Accountability	Accountability is one of the factors that most concerns NPO and public administration and is a way of holding account and providing reports. Usually, legislation is the primary driver for accountability, mainly financial reports as a contractual or statutory obligation. External stakeholders such as regulatory agencies, funders, and governmental departments, are the actors to whom these reports are addressed. Legal financial reports are a critical aspect for these organizations because in some cases, stakeholders require reports in short-term, but social value and social impact can take more time to be perceived and measured. Accountability can also be used to attract new donors and funders.	Arena et al., 2015; Connolly & Kelly, 2011; Cordery & Sinclair, 2013; Crucke & Decramer, 2016; Ebinger, Grohs, & Reiter, 2011; Ebrahim & Rangan, 2014; Moxham, 2009, 2014; Noordin, Haron, & Kassim, 2017; van Overmeeren et al., 2010	10

Table 1

Stakeholders	Legitimacy	Legitimacy in the NPO and public administration context can be defined as the perception by the stakeholders that activities are being properly developed, considering legal and contractual obligations, the goals and social mission. Legitimacy is motivated by a desire for organizations to be transparent and, through legal obligations and performance reports, promote themselves. Because of this, demonstrating their activities is an important mechanism to increase legitimacy and to contribute to attracting new funders, donors and other stakeholders.	Arvidson & Lyon, 2014; Connolly & Kelly, 2011; Conrad & Guven, 2012; Cordery & Sinclair, 2013; Duque-Zuluaga & Schneider, 2008; Lall, 2017; Moxham, 2009, 2014; Nguyen, Szkudlarek, & Seymour, 2015	9
Stakeholders	Involvement and influence of stakeholders	Public sector, donors, public and private funders, community, regulatory agencies, tax authorities, beneficiaries, suppliers, partners, staff, and volunteers are examples of stakeholders that are related to the context of NPO and public administration. These stakeholders are involved with those organizations through funding, local needs, partnerships, and other motivations. They have a complex involvement with the organization and influence the management and organizational decisions, including the definition of performance measures.	Allen, 2011; Amado & Santos, 2009; Arena et al., 2015; Arvidson & Lyon, 2014; Conaty, 2012; Conrad & Guven, 2012; Drews, 2010; Duque-Zuluaga & Schneider, 2008; Grigoroudis et al., 2012; Kinder, 2012; Pirozzi & Ferulano, 2016; Taylor & Taylor, 2014	12
Stakeholders	Volunteering	Volunteers contribute to the development of activities of public organizations and NPOs without contractual obligations but with interest in participating in social actions. They usually present different requirements and expectations compared to other internal stakeholders and will influence the management style and organizational culture.	Cnaan & Cascio, 1998; Duque-Zuluaga & Schneider, 2008; Taylor & Taylor, 2014	3

Table 1

Management	Financial sustainability	As the NPOs and public administrations has financial restrictions, and its focus is social value creation, their management is affected by that condition. Donations, investments, and subsidies are examples of sources of income. Some of these sources are not guaranteed for reasons such as political issues, and economic crises. So, it is a matter of organizational survival for an NPO and a public administration to maintain alternative sources of income to maintain their financial sustainability and provide their services.	Allen, 2011; Arena et al., 2015; Cordery & Sinclair, 2013; Duque-Zuluaga & Schneider, 2008; Lane & Casile, 2011; Sillanpää, 2013; Taylor & Taylor, 2014	7
Management	Short and long-term planning	NPO and public administration need to manage the instability of availability of resources influenced by the economic situation, political pressure, resources restrictions, need for inter-local equity and other problems. This context makes long-term planning more difficult and, depending on the situation, social impact can only be measured and assessed after several years.	Jung, 2011; Taylor & Taylor, 2014	2
Management	Fairness	The need to provide inter-local equity is a characteristic in some NPOs, and mainly in public organizations. For some of them, resources must be mobilized to provide a homogenous level of service, guaranteeing that social value creation promotes the same social gain.	Amado & Santos, 2009; Arena et al., 2015; Ebinger et al., 2011	3

Table 1

Management	Effectiveness and efficiency	It is possible to conclude that characteristics like social mission, financial sustainability, intangible results, and multiplicity and involvement of stakeholders can contribute to the complexity of operations of NPO and public administration and influence their efficiency and effectiveness. Effectiveness refers to the achievement of social goals and its social impact, and efficiency is a dimension that translates cost-efficiency of service production and refers to operations, resources, and delivery of outcomes and benefits to the public.	Amado & Santos, 2009; Arena et al., 2015; Conrad & Guven, 2012; Ebinger et al., 2011; Lane & Casile, 2011; Moxham, 2014; Sillanpää, 2013; Taylor & Taylor, 2014	8
Management	Strategic Management Control	The development of an environment open to learning and continuous improvement can contribute to the public administration's and NPO's promotion to stakeholders and create an organizational culture to measure its performance. In this context, a PMS can support the management and helps provide a way to organizational learning, and to promote continuous improvement through its use by all staff and volunteers.	Cordery & Sinclair, 2013; Crucke & Decramer, 2016; Duque-Zuluaga & Schneider, 2008; Ebrahim & Rangan, 2014; Lall, 2017; Moxham, 2009; Noordin et al., 2017; Nguyen et al., 2015; Pirozzi & Ferulano, 2016; van Overmeeren et al., 2010	10

Group	Factor	Practical implications
Purpose	Social approach	<ul style="list-style-type: none"> - The mission must be well-established and the social purpose must be in evidence; - The definition of performance indicators must consider the social value creation (in short and medium-term), and social impact (in long-term);
Stakeholders	Accountability	<ul style="list-style-type: none"> - All external requirements for financial and performance reports must be considered, including the performance indicators definition and standards of documents and reports
Stakeholders	Legitimacy	<ul style="list-style-type: none"> - The PMS must be designed to provide performance data to improve the management and support the legitimization for external stakeholders;
Stakeholders	Involvement and influence of stakeholders	<ul style="list-style-type: none"> - Strategic stakeholders could participate in the PMS design; - The interface of the PMS must be able to work with data from and to external platforms;
Stakeholders	Volunteering	<ul style="list-style-type: none"> - The PMS must support the managers to evaluate and reward volunteers according to legal aspects and organizational culture;
Management	Financial sustainability	<ul style="list-style-type: none"> - Performance indicators could help the management of alternative sources of income and the sustainability;
Management	Short and long-term planning	<ul style="list-style-type: none"> - Features of short and long-term required by stakeholders must be designed; - Performance indicators in short and long-term could be provide to support the organizational promotion and accountability;
Management	Fairness	<ul style="list-style-type: none"> - Performance metrics can support the analysis of fairness;
Management	Effectiveness and efficiency	<ul style="list-style-type: none"> - Performance indicators that translate effectiveness and efficiency must be defined to support the managers, decision-making, and the accountability process;
Management	Strategic Management Control	<ul style="list-style-type: none"> - The PMS must support the managers through useful performance metrics to support making-decision and to encourage the learning and continuous improvement in all levels of the organization.

Appendix A1

Reasons for use of PMM systems Adapted from Waal & Kourtit (2013)

More accurate measurement of performance	Robinson (2004)
More focus on the strategy	Robinson (2004)
Stronger accountability	Robinson (2004)
Need for a broader set of measures of performance	Robinson (2004)
Better facilitation of cross-functional understanding	Robinson (2004)
Better goal setting	Robinson (2004)
Formalization of the strategic planning process	Robinson (2004)
Stronger individual accountability of employees	Robinson (2004)
Stronger commitment of top management	Robinson (2004)
Higher commitment to the strategy	Neely et al. (2004)
Handling the increase in complexity of the organization	Tapinos et al. (2005)
Better description of mission, strategy and goals	Neely et al. (2004)
Improve the performance of the organization	Lawson et al. (2004)
Obtain a better understanding of knowledge and skills of people	Lawson et al. (2004)
Better control and with that better "obedience" of people	Lawson et al. (2004)
Tracking progress towards achievement of organizational goals	Lawson et al. (2004)
Aligning employee behavior with strategic objectives	Lawson et al. (2004)
Better communicating of strategy to everyone in the organization	Lawson et al. (2004)
Aligning the organization to the strategy	Lawson et al. (2004)
Being able to measure people, projects and strategy	Lawson et al. (2004)
Being able to measure performance at various organizational levels	Lawson et al. (2004)
Translating the strategy into operational terms	Lawson et al. (2004)
Need to make strategy everyone's job	Lawson et al. (2004)
Need to correlate measures and actions better	Lawson et al. (2004)
Linking rewards to performance	Lawson et al. (2004)
Enforcing and monitoring regulatory compliance	Lawson et al. (2004)
Requirement of a business opportunity	Lawson et al. (2004)
Expectation of the stock market	Lawson et al. (2004)
Requirement of governmental regulations	Lawson et al. (2004)
Decision support at top management level	Lawson et al. (2004)
Decision support at operational level	Lawson et al. (2004)
Providing a better picture of customer and product profitability Making responsibility accounting possible	Lawson et al. (2004)
Identify possible needs for changes in strategy	Lawson et al. (2004)
Facilitate implementation of business strategy	Lawson et al. (2004)
Provide information for external reporting	Lawson et al. (2004)
Facilitate comparison with other, similar business units	Lawson et al. (2004)
Enhance quality of the organization	Lawson et al. (2004)
Determination of the bonus of management and/or staff	Lawson et al. (2004)
Monitor whether the business is creating value for shareholders	Lawson et al. (2004)
Facilitate a process orientation	Lawson et al. (2004)

Appendix B1

Data of papers on design factors collected through the SLR process and content analysis

#	Title	Journal	Year	Scimago: Quartiles	Scimago classification: Most relevant subject area	Country of journal publication
1	Developing a Conceptual Framework for Comparing Social Value Creation	Academy of Management Review	2014	Q1	Business, Management and Accounting	United States of America
2	What impact? A framework for measuring the scale and scope of social performance	California Management Review	2014	Q1	Business, Management and Accounting	United States of America
3	Measuring the business and societal benefits of corporate responsibility	Corporate Governance	2010	Q1	Business, Management and Accounting	United Kingdom
4	A process-based view of social entrepreneurship: From opportunity identification to scaling-up social change in the case of San Patrignano	Entrepreneurship & Regional Development	2010	Q1	Business, Management and Accounting	United Kingdom
5	Challenges for performance assessment and improvement in primary health care: The case of the Portuguese health centres	Health Policy	2009	Q1	Medicine	Netherlands
6	Performance Measurement: Examining the applicability of the existing body of knowledge to nonprofit organizations	International Journal of Operations & Production Management	2009	Q1	Business, Management and Accounting	United Kingdom
7	Understanding third sector performance measurement system design: a literature review	International Journal of Productivity and Performance Management	2014	Q1	Business, Management and Accounting	United Kingdom
8	Measuring the impacts of welfare service innovations	International Journal of Productivity and Performance Management	2013	Q1	Business, Management and Accounting	United Kingdom
9	Performance management challenges in hybrid NPO/public sector settings: an Irish case	International Journal of Productivity and Performance Management	2012	Q1	Business, Management and Accounting	United Kingdom
10	Organizational Goal Ambiguity and Performance: Conceptualization, Measurement, and Relationships	International Public Management Journal	2011	Q1	Business, Management and Accounting	United Kingdom

Appendix B1

#	Title	Journal	Year	Scimago: Quartiles	Scimago classification: Most relevant subject area	Country of journal publication
11	Performance assessment of housing associations	Journal of Housing and the Built Environment	2010	Q1	Social Sciences	Netherlands
12	Intellectual capital and performance measurement in healthcare organizations: An integrated new model	Journal of Intellectual Capital	2016	Q1	Business, Management and Accounting	United Kingdom
13	Strategic performance measurement in a healthcare organisation: A multiple criteria approach based on balanced scorecard	Omega	2012	Q1	Business, Management and Accounting	United Kingdom
14	Performance measurement in the Third Sector: the development of a stakeholder-focussed research agenda	Production Planning & Control	2014	Q1	Business, Management and Accounting	United Kingdom
15	Learning, Innovating and Performance in Post-New Public Management of Locally Delivered Public Services	Public Management Review	2012	Q1	Business, Management and Accounting	United Kingdom
16	UK health sector performance management: Conflict, crisis and unintended consequences	Accounting Forum	2012	Q2	Business, Management and Accounting	Australia
17	Social impact measurement in social enterprises: An interdependence perspective	Canadian Journal of Administrative Sciences	2015	Q2	Business, Management and Accounting	United States of America
18	Market orientation and organizational performance in the nonprofit context: exploring both concepts and relationships between them	Journal of Nonprofit & Public Sector Marketing	2008	Q2	Business, Management and Accounting	United States of America
19	Performance and Commitment issues in Management of Volunteers in Human Service Organizations	Journal of Social Service Research	1998	Q2	Social Sciences	United States of America

Appendix B1

#	Title	Journal	Year	Scimago: Quartiles	Scimago classification: Most relevant subject area	Country of journal publication
20	The Performance of Decentralisation Strategies Compared: An Assessment of Decentralisation Strategies and their Impact on Local Government Performance in Germany, France and England	Local Government Studies	2011	Q2	Social Sciences	United Kingdom
21	Measuring performance in the third sector	Qualitative Research in Accounting & Management	2013	Q2	Business, Management and Accounting	United Kingdom
22	The Development of a Measurement Instrument for the Organizational Performance of Social Enterprises	Sustainability	2016	Q2	Social Sciences	Switzerland
23	Measuring to Improve Versus Measuring to Prove: Understanding the Adoption of Social Performance Measurement Practices in Nascent Social Enterprises	Voluntas: International Journal of Voluntary and Nonprofit Organizations	2017	Q2	Social Sciences	United States of America
24	Performance Measurement for Social Enterprises	Voluntas: International Journal of Voluntary and Nonprofit Organizations	2015	Q2	Social Sciences	United States of America
25	Social impact measurement and non-profit organizations: compliance, resistance and promotion	Voluntas: International Journal of Voluntary and Nonprofit Organizations	2014	Q2	Social Sciences	United States of America
26	Organizational collaborative capacities in Disaster Management: Evidence from Taiwan Red Cross	Asian Journal of Social Science	2011	Q3	Social Sciences	Netherlands
27	Developing a comprehensive performance measurement system for waqf institutions	International Journal of Social Economics	2017	Q3	Economics, Econometrics and Finance	United Kingdom

Appendix B1

#	Title	Journal	Year	Scimago: Quartiles	Scimago classification: Most relevant subject area	Country of journal publication
28	Understanding accountability in social enterprise organisations: a framework	Social Enterprise Journal	2011	Not available	Not available	Not available
29	Angels on the head of a pin: The SAC framework for performance measurement in social entrepreneurship ventures	Social Enterprise Journal	2011	Not available	Not available	Not available

Public Administration Review

Factors for performance measurement systems design in nonprofit organization and public administration --Manuscript Draft--

Manuscript Number:	
Full Title:	Factors for performance measurement systems design in nonprofit organization and public administration
Short Title:	Factors for performance measurement systems design in nonprofit organization and public administration
Article Type:	Research Article
Keywords:	Performance measurement; nonprofit organization; public administration
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Manuscript Region of Origin:	BRAZIL
Abstract:	<p>The purpose of this research is to examine the factors that influence the design of performance measurement systems in the nonprofit organization and public administration and explore inter-relationships between these factors. The findings resulted from a systematic literature review and application of a factor co-occurrence social network for determining the relationship between design factors show how some of these factors influence the applicability of performance measurement systems from traditional companies because of complexity and dynamics of these organizations. Also, the findings and discussion contributes to the performance measurement literature on nonprofit organization and public administration by presenting a set of design factors related to purpose, stakeholders, and management. The design factors are particular to the organizational dynamic and should be considered by managers involved with the design (or redesign) process of a performance measurement systems.</p>

Factors for performance measurement systems design in nonprofit organization and public administration

Abstract:

The purpose of this research is to examine the factors that influence the design of performance measurement systems in the nonprofit organization and public administration and explore inter-relationships between these factors. The findings resulted from a systematic literature review and application of a factor co-occurrence social network for determining the relationship between design factors show how some of these factors influence the applicability of performance measurement systems from traditional companies because of complexity and dynamics of these organizations. Also, the findings and discussion contributes to the performance measurement literature on nonprofit organization and public administration by presenting a set of design factors related to purpose, stakeholders, and management. The design factors are particular to the organizational dynamic and should be considered by managers involved with the design (or redesign) process of a performance measurement systems.

Keywords:

Performance measurement; nonprofit organization; public administration

Evidence for Practice:

Designing a performance measurement to accomplish with all nonprofit particularities is a complex task.

The perception of social aspects as design requirements is crucial for system design.

During the advancement of research in performance measurement systems (PMS), some frameworks have been adapted to nonprofit organizations (NPO) and public administration. As an example, one of the most widespread PMS in the literature and practice, the Balanced Scorecard (BSC), developed by Kaplan and Norton (1992), had its application with a focus on the public sector, particularly on local governments, government departments and government agencies, described in 23 articles from 1992 to 2012 (Hoque 2014). Although other systems and frameworks have been developed since then, the BSC has been broadly discussed, assessed and applied over the last 20 years (Hoque 2014; Y.-T. Lee and Moon 2008; Somers 2005; Gomes and Liddle 2009). In fact, Moxham (2009) argues that studies related to PMS in the public sector are increasing, but the same cannot be said for NPO in general. According to Speklé and Verbeeten (2014), PMS have been a popular trend in public sector organizations in the last decades. Nevertheless, in others studies, the public sector is approached as a type of NPO (Karwan and Markland 2006; Valentinov 2011). This, sometimes, is made even harder for there is not a consensus about NPO terminology and classification. Many types of organizations can be considered NPO, including universities, hospitals, trade unions, cooperatives, third sector institutions, volunteering organizations, regulatory agencies, charitable and welfare institutions, foundations, professional associations, and social enterprises, among others (Valentinov 2011; Moxham 2009; Karwan and Markland 2006). In this article, all these types of organizations are considered NPO. The adaptation of PMS from for-profit models is being criticized by scholars as it lacks strong theoretical foundations (Straub, Koopman, and Mossel 2010; Borst et al. 2014). The majority of the available PMS designed by consultancy companies are not able to meet the performance measurement requirements for NPO and public administration, as they do not have a proper developed theoretical basis (Mouchamps 2014). In a study

about PMS for hospitals, Leotta and Ruggeri (2017, p. 955) observe that the introduction of performance measurement frameworks often fails because of the different perspectives and interests of the actors during the process, “so that they have been rapidly put aside and substituted with further innovations”. The differences should be considered and also the healthcare context, besides the managerial techniques used by the organization.

Martello, Watson and Fischer (2016) describe the implementation of the BSC in a Rehabilitation Center, which addressed with equal emphasis the consumer and financial perspectives. According to the authors, this was performed because of the necessity to focus on the customer while maintaining financial stability. A study developed by Reda (2017) points that despite adoptions of BSC by higher education institutions, the framework was not able to capture the core functions of this kind of organization, and the quality assurance practices are only marginally considered in the system. For Ozmantar and Gedikoglu (2016), the use of the BSC in educational settings should be designed with distinguishing dimensions that meet the institution’s strategy because the original dimensions (financial, customer, internal process, and learning and growth) are not wholly suitable. The authors present a study of the design and implementation process of the BSC in an educational institution in Turkey. Different stakeholders worked in the development process of this BSC and staff, teachers, students, and their parents contributed to the strategic plan development. The four dimensions of the BSC were not satisfactory to resolve the institution’s problems. Together with the practitioner, they created new dimensions, and the BSC was remodeled with new aspects that were tested and applied in the school.

As can be seen from these examples for designing a PMS for the NPO and public administration it is necessary to understand what are the factors named as dimensions,

barriers, drivers, and motivations, that influence this design, including, among others, the legitimacy, stakeholders demands, organizational parameters, and how they are related to each other (Micheli and Kennerley 2005; Borst et al. 2014; Moxham 2009; Straub, Koopman, and Mossel 2010).

According to Arena et al. (2015), these factors have to be capable of including the multiple goals regarding social, economic, and environmental performance. Also, the understanding of this context contributes to set social goals for NPO and public administration that need to be translated into measurable terms. NPO and public administration are different legally but resemble each other in terms of pursuing social goals rather than financial gain for their investors or partners. Furthermore, the demands for accountability, especially because of donations, investments, and transparency are increasing. The lack of standardized processes for performance assessment in NPO and public administration makes it difficult to provide legitimacy and suggests one more reason to study performance measurement and indicators.

The purpose of this article is to examine which are the factors that influence the design of PMS for NPO and public administration and how they are related. For that, a factors' social network is constructed. Through this analysis, this article presents practical implications for managers in the PMS design process and shows how some design factors can be particularly related to these organizations.

Theoretical background

For Neely's *et al.* (1996), performance measurement is “the process of quantifying action, where measurement is the process of quantification and action correlates with performance”. Also, performance measurement “helps managers monitor performance” (Poister *et al.*, 2014, p. 36) and cannot be confused with performance management, which is the range of actions to improve performance and results through management tools and the measurement process.

The study of Pinheiro de Lima *et al.* (2013) shows that one of the PMS roles is to provide the improvement of efficiency and effectiveness, contributing to organizational strategy and the monitoring of results. Moreover, the study shows that PMS contribute to performance management to:

“Produce positive change in organizational systems and processes, develop a continuous improvement capability through implementation and management of an integrated operations strategic management system, produce positive change in organizational culture, and provide a closer understanding of market needs to create a perceived value for customers” (Pinheiro de Lima *et al.*, 2013, p.531).

According to Bititci (1995), PMS have to be designed to provide integration in the company considering all customers' requirements, which includes all stakeholders involved in the organization, financial and non-financial measures, the process aligned with the strategies, the promotion of continuous improvement, and management of conflicts. The study of Waggoner *et al.* (1999) points out that the internal influences (power relationships, dominant coalition interests, peer pressures, search for legitimacy), external influences (legislation, market volatility, information technology,

nature of work), process issues (manner of implementation, management of political processes, innovation saturation, lack of system design), and transformational issues (degree of top-level support, the risk of gain/loss from change, the impact of organizational culture) influence the evolution of PMS.

In fact, as observed by Nudurupati et al. (2011), many organizations are recognizing the importance of a holistic PMS, further of the financial measures. “In many companies, non-financial indicators such as quality, customer satisfaction, cycle time, and innovation were recognized”. For the use of PMS in a nonprofit environment, Kaplan (2001) indicates that the BSC has to be adapted to a nonprofit management style every time that the situation requires it. With a social target, the mission has to be at the top of the scorecard instead of a financial perspective.

In their research related to law and justice organizations, Pekkanen and Niemi (2013) argue that performance measurement programs in the studied organizations had the goal to increase productivity and highlighted the efficiency of outputs measures. According to the authors, this, however, “led to inappropriate measurement of output and efficiency without understanding and analyzing the causal effects on other aspects of the organization’s performance”. Also according to the authors, performance measures should be designed in a balanced view to aid in the application of managerial tools and considering the management style of the organization. On the other hand, MacBryde et al. (2014) presented a case study in the defense sector that successfully applied the BSC. They identified that the use of the BSC resulted in benefits, e.g. bottom-up positive changes, cohesion in the departments, and kept the focus on efficiency gains. Bracci, Maran and Inglis (2017) analyzed the process of BSC design and implementation in two Italian public service organizations and observed that while in one case the process was successful, in another there was a failure. According to the

authors, problems with the definition of strategic objectives, internal resistance, and external influences compromised the performance measures definition and made work difficult. They suggested a combination of BSC design including the “external (political/social) and internal (cultural) organizational environment”.

In the study related to public performance measurement in the Italian environment, Barbato and Turri (2017) point out that the intense pressures to meet legal obligations and agencies’ resolutions influence the use of PMS and the development of multidimensional indicators. Those several pressures for the adoption of measurement tools produce internal tensions, and the design and implementation of PMS are not done entirely and satisfactorily. So, the result is a system not used as a management tool, but only as a tool for the fulfillment of legal requirements, and that increases the legitimacy for external stakeholders. According to the authors, many public organizations don’t use PMS for an extended period, prioritizing only the mandatory roles.

Moreover, Holzer and Kloby (2005) indicate other external influences, e.g. spending control, increasing the accountability practice and the search for performance measurement in the public sector context. In fact, Poister et al. (2014) consider that there is a movement to professionalize the management in public organizations, considering business approaches such as PMS and strategic planning. Besides that, Halachmi (2005) points out that other reasons have led the public sector to use PMS, such as the fiscal requirements for efficiency and responsiveness. Greiling (2005) complements this, identifying issues such as changes in public budgeting that also include outcomes indicators, planning process, reporting for accountability, contract management that covers information about quality indicators of services, benchmarking, internal diagnosis, decision-making, and strategic management system.

Borst et al. (2014) argue that PMS for the public sector is a controversial issue.

According to them, the public sector has multiple stakeholders, which imply in various and different performance measures. So, simple frameworks for performance measurement are not applicable for the public administration. Even for the NPO, as observed by Micheli and Kennerley (2005), few attempts were conducted for designing a generic performance measurement framework.

Financial and competitive pressures have contributed to the use of performance measurement tools by NPO too. Bititci et al. (2012) mention the increase in the number of studies about PMS, considering the collaboration across global multicultural networks, including the impacts for small and medium enterprises and NPO, including the public sector, and considering their fundamental and significant role in global production networks.

According to Lee and Nowell (2015), although the adaptations of PMS for the NPO context and the evolution in the research area, all the divergent perspectives are not being considered yet and “these efforts have tended to be more narrow than holistic in focus (e.g., focusing on financial performance), and have not attended to the specific performance dimensions of the nonprofit sector”. The authors present a literature review which reveal some core perspectives in the performance study for the NPO context: NPO work in challenging environments through restrictive resources; performance is seen in the organizational capacity and in the use and evaluation of programs; academic research should consider the assessment of the value of an NPO for society; NPO should consider the degree of their contribution for their beneficiaries; contemporary frameworks consider a view of NPO with a complex stakeholders’ relationship.

Figure 1 synthesizes the central theoretical concepts presented in this section and provides a view of performance measurement and the peculiarities of NPO and public administration. In this way, the relevance of the study to identify the factors that

influence the design of PMS in these organizations can be explained by the necessity of the design and development process considering different organizational perspectives to include performance measurement in its administration.

[Figure 1 here]

According to this context, this article introduces a set of factors that influence the design of PMS and how they are related. The outcomes can support managers in designing a performance measurement process and a PMS observing the role that the factors play.

Research design

This article analyzes the content of an article set identified in a systematic literature review (SLR) of the factors that influence the design and implementation of PMS in NPO and public administration. The overall approach was divided in three major phases and is presented in Figure 2.

[Figure 2 here]

In the SLR and semantic analysis, the central question that guided this SLR was "*What are the factors that influence the design and the implementation of PMS in NPO and public administration?*". Although they have juridical differences, nonprofit organizations and public administration resemble each other in terms of pursuing social goals rather than financial profit for their investors or partners. In fact, some studies about performance measurement and management work with both kinds of organization as Berman (2014), Sinuany-Stern & Sherman (2014), Micheli & Kennerley (2005) and Poister (2003).

The SLR article set is based on documents that meet two criteria: the main article theme should be related to public institutions, foundations, private institutes, cooperatives, associations, non-governmental organizations (NGO) or social enterprises; and the article should cover performance studies: PMS, performance indicators/measures, and performance measurement processes – design, implementation, use or review. From 245 articles that formed the SLR until December 2017, 29 of them make reference to design of PMS for NPO and public administration and, hence, have their content analyzed for factors identification.

The study of the set of 29 articles generated a list of ten factors after extracting, coding and grouping factors from each article. An adjacency matrix was created where it is possible to identify the factors that are mentioned together in a given article. This matrix is shown in Table 1, in which the first column has the article ID, and the first line has the set of factors. Factors present in a given article have a '1' in the corresponding column/line, so it is possible to check which design factors appear together in the set of 29 articles from the SLR.

[Table 1 here]

Through the adjacency matrix it is possible to perform a network analysis of the factors, where the factors are represented as vertices and each edge represents the number of co-occurrences of a particular pair of factors in the 29 selected articles. For that, Table 2 shows the co-occurrence matrix for the factors. The number of co-occurrences varies from 1 to 4.

[Table 2]

Thus, a factors network is presented for better comprehension of factors correlations, contributing to the understanding of the structural connections among the design factors. In a study about performance measurement in collaborative public management, Kapucu and Demiroz (2011, p. 552) argue that the use of network analysis is growing in research because it “provides tools for a better understanding of communication lines, figuring out who the key central players are, mapping information flow, and identifying possible threats to connectivity”. Carter et al. (2015) studied the use of network analysis in leadership research and concluded that the use of network approaches contributes to examining structures and processes in a relational, situated, patterned, formal and informal strategy for the study of theory and practice of organizational leadership considering the challenges for the 21st century.

The factors network constructed for this article shows degree centrality. The degree centrality measure, formalized by Freeman, (1978), indicates the relevance of each vertex/element considering its central location in the network, i.e., it provides information related to the position of the elements in the network. It presents the number of direct contacts that each analyzed element has, revealing how much the element is directly linked to the others. The more connections an element has, the more dominant this element is (Borgatti and Cross 2003), which means, in this article, that the factor with more connections has stronger ties with other factors, considering the number of times that they are studied together in the articles.

Scott (1991) presents degree centrality of an element as a measure of local centrality.

Degree centrality of an actor ' p_k ' is defined by Equation 1:

$$Cn(pk) = \sum_{i=1}^n a(pi, pk) \quad (1)$$

Where ' n ' is the element number and $a(pi, pk) = 1$ if elements ' p_i ' and ' p_k ' are connected, otherwise $a(pi, pk) = 0$. Although, according to Freeman (1978), degree centrality could reflect an elements' position and role in terms of popularity and activity.

The network analysis structured in this article, as will be seen in Section 5, revealed that for NPO and public administration, the factor with the highest degree centrality is 'accountability', followed by 'involvement and influence of stakeholders', and 'social approach'. Thus, it is possible to better understand the factors, how they perform, how they are linked, and how they can influence, motivate or drive the design of PMS in

NPO and public administration. The implications of network analysis are discussed in Section 6, which offers some insights for managers, and the practice of PMS, particularly design, in NPO and public administration.

Factors that influence the design of PMS for NPO and public administration

A set of ten factors that influence the design of PMS in NPO and public administration were compiled from the SLR and from the semantic analysis described in section 3. These factors are organized into three groups: factors related to purpose, factors related to stakeholders, and factors related to management. Figure 3 shows the set of factors. See Appendix A, Table A1 for the articles that mention each one of the factors.

[Figure 3 here]

The only factor related to the mission and purpose group is ‘social approach’. Social aspects are related to the organizational mission, which focuses on social gain. Financial profit is not pursued as in traditional enterprises, as Mair and Martí (2006) explain: “the main difference between entrepreneurship in the business sector and social entrepreneurship lies in the relative priority given to social wealth creation versus economic wealth creation.” Therefore, goals are delimited through social mission and social gain determines if the organization reached success in its actions. According to

Ebrahim and Rangan (2014), social impact is perceived by “demonstrating results in addressing complex social problems such as poverty and inequality.”

The first factor related to stakeholders is ‘accountability’. Legal obligations to financial reporting are the main characteristic that determines the need for accounting and demonstrating the results of activities in NPO and public administration. To meet accountability requirements, performance reporting is sometimes integrated to financial reporting and defines the accounting process. Besides legal obligations, Connolly and Kelly (2011) and Cordery and Sinclair (2013) comment that those kinds of organization must report to stakeholders because stakeholders require this as a way to prove that their financial resources are being efficiently and effectively applied. The authors also state that performance assessments are one of the tools for accountability, and that performance reports have been used for operational control, to produce performance and financial data, and to feedback funders, government agencies and other stakeholders. Also, as observed by Moxham (2009), there is a concern with accountability, especially in the public sector, that involves the destination of public funds, and in this context, PMS are cited as an alternative to ensure accountability by both the public sector and any other type of NPO.

The second factor related to stakeholders is ‘legitimacy’. Cordery and Sinclair (2013) and Arvidson and Lyon (2014) consider that legitimacy can be described as the pursue for trust and credibility by an NPO, not only because these organizations have legal obligations to report their activities and use of resources, but because they need to promote themselves for their stakeholders, especially for funders, trying to reach new donors. Moxham (2009) emphasizes that the public sector is the most representative kind of organization that has to provide information about its performance. Moreover, other NPO are frequently related to the public sector by public investments, subsidies

and governmental regulations. Thus, legitimacy is related to accountability to meet legal obligations and keep track of results and other requirements. Although, those organizations may use performance measurement to demonstrate their service quality, Moxham (2009) and Arvidson and Lyon (2014) foresee this as a strategy for getting more funding and attract new donations. Also, as stated by Connolly and Kelly (2011), legitimacy resulting of transparency can contribute to organizational promotion and give visibility to resources and achievements.

The next factor is 'involvement and influence of stakeholders'. The multiplicity of stakeholders present in the NPO and public administration context can be characterized by community interests, private and also public funding, clients/beneficiaries/users, suppliers, regulatory agencies, and donors/investors. Conrad and Guven (2012) argue that stakeholders' involvement influences performance management as "it is important to understand the institutional context, and how political interests may influence the construction of performance measures." Borst et al. (2014) also argue that while private companies focus on managers or owners' interests, public organizations are based on collective choices. Some stakeholders participate actively in the management of NPO and public sector, and could influence decision-making, performance measures definition, short and long term planning, and the definition of social targets.

'Volunteering' is the last factor related to stakeholders and is a particular organizational element of nonprofit and public operations. Cnaan and Cascio (1998) consider it as one of the unique characteristics when comparing it with traditional companies. In many cases, volunteers are responsible for the majority of an NPO's human resources, but they are present in the public activities too. They have different expectations for work and, frequently, the organization has different requirements for them. Usually, volunteers are not interested in payment, but social contribution is what is pursued.

According to Cnaan and Cascio (1998) and Cordery and Sinclair (2013), this situation depends on the employment and financial status of the volunteer. It also impacts how to reward them considering organizational and individual performance assessment.

The first factor related to management is 'financial sustainability'. The legal nature of the NPO and public administration does not allow it to generate financial gain to be distributed among investors or owners. Therefore, an NPO and public administration work through investments, grants, donations and other alternative sources of income.

Amado and Santos (2009) observe that these organizations have to manage the instability of its income sources due to political pressures, economic issues, and financial restrictions by regulatory agencies or governments.

The second factor related to management is 'short and long-term planning'. For NPO and public administration in general, funding is provided for the short-term, while social impact will be fully realized in the long-term. Jung (2011) states that setting social goals that fit the exact or close period of investment or subsidy is a challenging task. Also, to provide performance reporting can be equally challenging and it can implicate in strategic changes for the management that may be positive or not in the long-term.

The factor named 'fairness' corresponds to the search for equity and balance among planning, investments, and actions of an organization considering a group of beneficiaries or citizens, providing equal access for all of them. According to Amado and Santos (2009), there should be no difference for the people, independently of race, region, gender, religion or other characteristics.

The next factor related to management is 'efficiency and effectiveness'. The complexity of the operations of those organizations makes management processes and the management function a challenge. Characteristics like social mission, alternative sources of income, intangible results, and multiplicity of stakeholders contribute to the

complexity of operations and influence efficiency and effectiveness of the management activity. Clark and Brennan (2012) and Ebrahim and Rangan (2014) define effectiveness of operations as a multi-dimensional measure that is related to the impact of results. However, according to Moxham (2009), some studies point out difficulties in relating effectiveness to performance indicators. Because of this, many organizations use multiple systems to meet stakeholders demands for performance information. In this situation, Ebinger et al. (2011) add the efficiency aspect, which is also an important dimension of performance measurement, as it translates cost-efficiency assessments in virtuous cycles of continuous improvement.

‘Strategic management control’ is the last management factor and is related to the management process, learning and continuous improvement. Taylor and Taylor (2014) consider that besides the use of PMS as a way to provide accountability and promote legitimacy to stakeholders, the system could also be designed as a tool for promoting learning and continuous improvement, which directly contributes to a strong mission-oriented organizational culture.

Having a glimpse of the design factors definitions and classification, the structure that interconnects them is presented and discussed next.

Factors analysis

A network study was performed to understand how design factors are related to each other. For this, a factors network was drawn, according to what was discussed in Section 3. Each factor is represented by a vertex in the network, while each edge

represents the co-occurrence of a pair of factors in the 29 articles selected for content analysis (e.g., the number of references in which they were identified appearing together). The degree centrality measure is used to calculate the number of relationships a given factor directly has to others.

Figure 4 shows the factors network from a degree centrality perspective – the most central the factor, the closer it is to the center of the figure. The edge thickness represents the number of co-occurrences of a pair of factors, from Table 2. All factors are indicated in the graph and the numbers represent the amount that they are present in the studied articles. The ‘accountability’ is the is the design factor with the highest degree centrality and is positioned in the center of the network followed by the ‘social approach’ and ‘involvement and influence of stakeholders’. ‘Accountability’ has direct relations with other identified factors in the reviewed literature, such as ‘strategic management control’ with four occurrences, and ‘social approach with three, ‘financial sustainability’ and ‘legitimacy’ with two occurrences. ‘Volunteering’, on the other hand is the design factor with the lowest degree centrality, and is linked to only two other factors: ‘involvement and influence of stakeholders’, and ‘efficiency and effectiveness’. Table B1 in Appendix B provides the degree centrality scores.

[Figure 4 here]

Van Overmeeren et al. (2010) and Arvidson and Lyon (2014) consider that the pressure that stakeholders’ demands impose over PM is the primary motivation for reporting performance results, which explains why the factor ‘accountability’ appears close to the

center of the network. According to Conaty (2012) and Arvidson and Lyon (2014), pressure and requirements from stakeholders could represent a discomfort for NPO. For Julnes (2006), accountability should be seen as a way to improve NPO's performance and not as a form of punishment when services are not delivered according to the expectations. Indeed, stakeholders' management is a considerable challenge for NPO. As argued by Lee and Nowell (2015), "each funding source suggests a different audience and consumer of performance measurement information". According to the authors, different sources of income may raise different concerns over funding. When funding comes from a commercial source, the concern will most likely be related to the efficiency of its use. In government funding, the concern will focus on accountability and equity. In corporate financing, the main concern will be visibility and public value, whereas in private donor funding, the main concern will be on social change. A case study presented by Carnochan et al. (2014) exhibits the results of a PM design project, showing that managers are concerned with mandatory performance measures and, in some cases, these are the only measures. "There was a common tendency among program managers and line staff to believe that funders care more about specific organizational outputs (e.g., number and type of clients served) than client outcomes. So, in this dynamic and complex context, for Conaty (2012) and Taylor and Taylor (2014), an NPO has to manage prioritization of multiple accountabilities in their own strategic plan.

In many cases, stakeholders are responsible for financially sustaining NPO, so the concern about resources and funding are challenging issues for the organizational management. For Thomson (2010), "given the dependence of most organizations on external funding, it is logical to expect funder mandates to substantially affect the extent

of PM". This situation represents a difficulty in proving impact and outputs for stakeholders that require evidence of quality services and results.

Multiple stakeholders' demands imply in a complex system for monitoring NPO results.

How to measure operational efficiency, the efficient use of resources and the effectiveness of results is a challenging task considering the nature of an NPO, stakeholders interests and the differences in stakeholders requirements, especially to public sector operations (Karwan and Markland 2006). The cost of provided services can vary according to local needs and financial resources usually come from many different sources. Amado & Santos (2009, p.47) argue that NPO "respond to external forces, in particular, government pressure to improve primary care delivery for the local population using the limited resources available". Organizations that depend on volunteers may have difficulty allocating human resources in all activities, either because of their availability or interest in a given task (Cnaan and Cascio 1998). Also, proving a positive result is achieved, although the financial indicator doesn't show this, is a considerable challenge to determining the effectiveness of the outputs for stakeholders. Sometimes the relationship between services and income stream may be non-existent or yet doesn't reflect the expected level when compared with outputs levels (Lane and Casile 2011) but this does not mean that social impact is not high.

The 'social approach' is another design factor with the highest centrality of degree after 'accountability' and it is positioned close to the center of the network. This factor has direct links with six other factors: as 'financial sustainability', 'accountability', 'short and long-term planning', 'involvement and influence of stakeholders', 'efficiency and effectiveness', and 'strategic management control'.

Understanding how the 'social aspects' factor works with other factors can justify the reason for this factor to be shown close to the highest degree centrality. Firstly, social

aspects are the primary motivation for NPO' activities. Social aspects involve the organizational mission, vision and the establishment of goals and targets that define measures for assessing social impact and social value creation. Poister et al. (2014) discuss the importance of the mission, clear goals, and objectives for organizational performance, and they argue that "usually the most meaningful performance measures are derived from the mission, goals, objectives, and, sometimes, service standards that have been established for a particular program".

Secondly, an NPO can't legally share financial profit with owners or funders, so social value creation is the main objective to be pursued. According to Pirozzi and Ferulano (2016), "in NPO, the financial aspects are not as important as the human and social aspects. Indeed, an NPO's mission to deliver services while keeping in touch with end-users is crucial". This context justifies the necessity for alternative sources of income. Sources of income may vary according to NPO, but, in general, donations, investments, financing, and subsidies are the main origins. In this sense, an NPO must cope with legal obligations to produce financial and performance reports as a way to provide accountability to stakeholders. This context implies in trust and credibility by stakeholders through tangible and intangible results, as highlighted by Moxham (2009). Lastly, stakeholders can influence social characteristics in the definition of organizational goals, in how to measure social impact and social value, and in the consideration of community interests. Also, as pointed out by Kong (2010), the decline in tax support and political divergences delineate a challenging context for an NPO to operate. In this way, accountability can be required in the short-term while the measurement of social impact is only possible in the long-term. Social value creation and social impact depend on many variables, and their perceptions may be in the long-term only. So, stakeholders' requirements for reports in the short-term can be a

challenge for the management. Besides, in some situations, the uncertainty of financial inflows may disturb the social goals planning but directly impacts organizational efficiency and effectiveness.

Having understood the relationship among design factors, it is possible to synthesize some practical implications for the design of PMS in NPO and public administration that are presented in the next section.

Practical implications for the PMS design

The content analysis and the network study presented in this article may offer insights for managers when considering the factors for the design of PMS in NPO and public administration. Some factors are usually not present in business models and are intrinsic characteristics of an NPO and public administration – e.g., social approach, volunteering, and alternative sources of income related to their financial sustainability. Usually, these factors are not included in generic PMS, but are present in the routine activities of the organization. Even more general factors such as efficiency and effectiveness are influenced by the nonprofit or public organization context through factors such as social approach and other intangible variables.

The use of PMS seems helpful for organizational management in three perspectives: the organizational purpose through the consideration of social approach; the perspective of stakeholders through the consideration of accountability, legitimacy, involvement and influence of stakeholders, and volunteering; and the perspective of management through the consideration of financial sustainability, short and long-term planning, fairness,

efficiency and effectiveness, and strategic management control. No evidence was found of other studies with such a comprehensive list of factors for the design of PMS in the nonprofit and public context. Derived from the study of factors and how they are related, it is possible to offer some practical implications for PMS design in nonprofit and public sector, presented in Figure 5.

[Figure 5 here]

Conclusions

This article presents a set of factors that can influence the design of PMS for NPO and public administration that contributes to the understanding of the factors and how they relate to each other. The study also contributes to the knowledge of nonprofit and public administration PMS design factors through a systemic view, particularly showing how social aspects are crucial to characterize these organizations and differentiate it from other companies, guiding the design of its PMS by highlighting that the goal is to pursue social impact, with profit remaining in the background. Also, the analysis shows the influence of stakeholders on governance, through the providing of financial resources and the determination of social goals, and on accountability requirements, and the challenge of assessing efficiency and effectiveness. In this complex environment, the PMS could play an important role in assisting their management.

The findings presented in this study provide insights for the advancement of the operations management area, both for performance measurement and NPO and public administration studies. Some challenges for the design of PMS for these organizations can be identified, such as:

- The PMS can assist the organization in providing accountability for its actions, as expected by stakeholders and according to the pertaining legislation.
- The PMS may provide reports which attest good organizational performance, efficiency in financial management and/or social impact, including tangible and intangible results in short and long-term for stakeholders.
- The PMS can provide performance measures or indicators that contribute to transparency and also proves organizational effectiveness to promote it for stakeholders.
- The PMS can integrate organizational performance measures and stakeholders' demanded indicators.
- The PMS interface should translate social demands in information that can be promptly used in the PM process.
- The system interface should consider the multi-dimensional measures of an NPO and public administration and be integrated with other systems.
- The PMS should be promoted for use in the organization and should be designed to avoid the resistance of employees and external stakeholders.

A limiting factor in this study was the difficulty in factors' identification in the literature because of the different terms used by authors to refer to them including the similarities and differences between NPO and public administration. Designing a performance

measurement to be aligned to all particularities of those organizations is complex and a difficult task, given the required materiality of performance measurement processes. For future research, the identified design factors should be considered in the PMS design process in the same types of NPO. Also, managers or practitioners who are reviewing the PMS for an NPO or public administration could examine the review process and performance measures definition following the perspectives of the design factors and the practical implications presented in this research.

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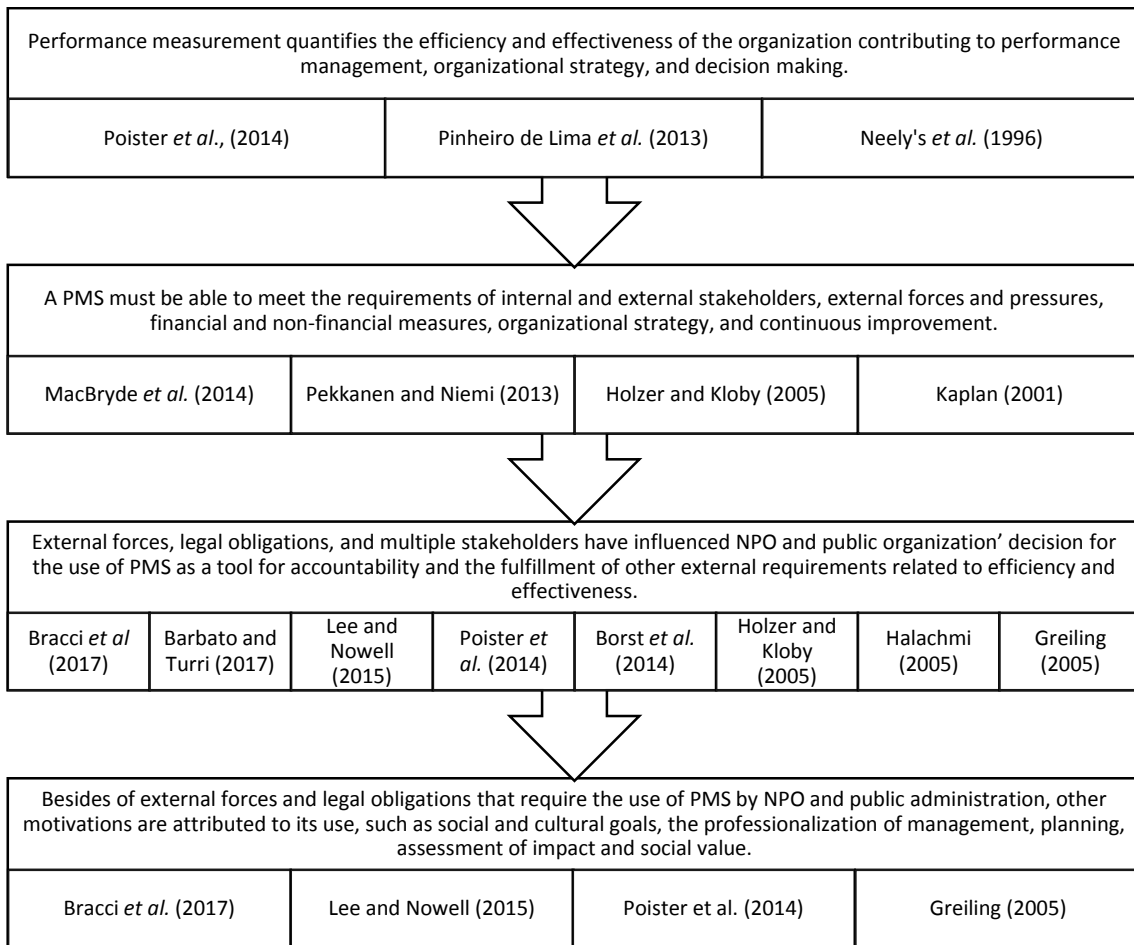


Figure 1: Synthesis of main theoretical concepts

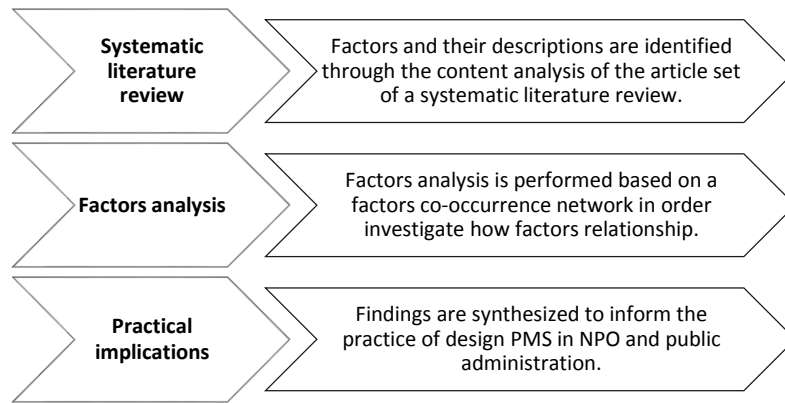


Figure 2: Research design phases

Table 1: Factors identified in each one of the articles that mention design factors

Article ID	Social approach	Accountability	Legitimacy	Volunteering	Involvement and influence of stakeholders	Financial Sustainability	Short and long-term planning	Fairness	Efficiency and effectiveness	Strategic management control
P1	0	0	1	0	0	0	0	1	1	0
P2	0	0	0	0	0	0	1	0	0	0
P3	1	0	0	0	1	0	0	0	0	0
P4	0	0	0	0	1	0	0	0	0	0
P5	0	0	0	0	1	0	0	1	1	0
P6	0	0	0	0	1	0	0	0	0	0
P7	0	0	1	0	1	0	0	0	0	0
P8	1	0	0	0	0	1	0	0	0	0
P9	0	0	0	1	1	0	0	0	1	0
P10	1	1	0	0	0	1	1	0	0	1
P11	1	0	0	0	1	0	0	0	0	0
P12	0	0	0	0	0	0	0	0	0	1
P13	0	0	0	0	1	0	0	0	0	0
P14	0	0	0	1	0	0	0	0	0	0
P15	0	0	0	0	1	1	1	0	0	0
P16	0	1	1	0	0	0	0	0	1	0
P17	0	1	0	0	0	0	0	0	0	1
P18	0	0	1	0	1	0	0	0	0	0
P19	0	1	1	0	0	0	0	0	0	0
P20	1	1	0	0	0	0	1	0	0	0
P21	1	0	0	0	0	1	0	0	1	0
P22	1	0	0	0	0	0	0	0	0	0
P23	1	0	0	0	0	0	0	0	0	0
P24	0	1	0	0	0	0	0	0	0	1
P25	0	0	0	0	1	0	0	0	0	1
P26	0	0	1	0	0	0	0	0	0	1
P27	0	0	1	0	0	0	0	0	0	1
P28	0	1	0	0	0	0	0	0	0	1
P29	1	1	0	0	1	1	0	1	1	0

Table 2: Co-occurrence matrix for the design factors

Factors	Social approach	Accountability	Legitimacy	Volunteering	Involvement and influence of stakeholders	Financial Sustainability	Short and long-term planning	Fairness	Efficiency and effectiveness	Strategic management control
Social approach	-	3	0	0	3	4	2	1	2	1
Accountability	3	-	2	0	1	2	2	1	2	4
Legitimacy	0	2	-	0	2	0	0	1	2	2
Volunteering	0	0	0	-	1	0	0	0	1	0
Involvement and influence of stakeholders	3	1	2	1	-	2	1	2	3	1
Financial sustainability	4	2	0	0	2	-	2	1	2	1
Short and long-term planning	2	2	0	0	1	2	-	0	0	1
Fairness	1	1	1	0	2	1	0	-	3	0
Efficiency and effectiveness	2	2	2	1	3	2	0	3	-	0
Strategic management control	1	4	2	0	1	1	1	0	0	-

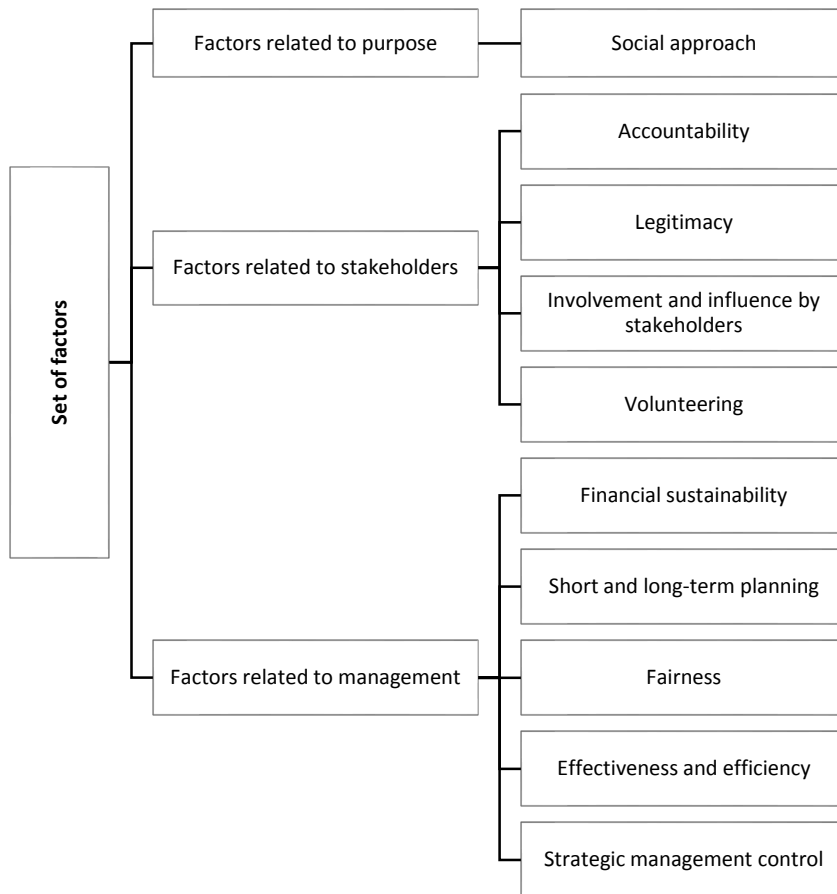


Figure 3: Factors that influence the design of PMS in NPO and public administration

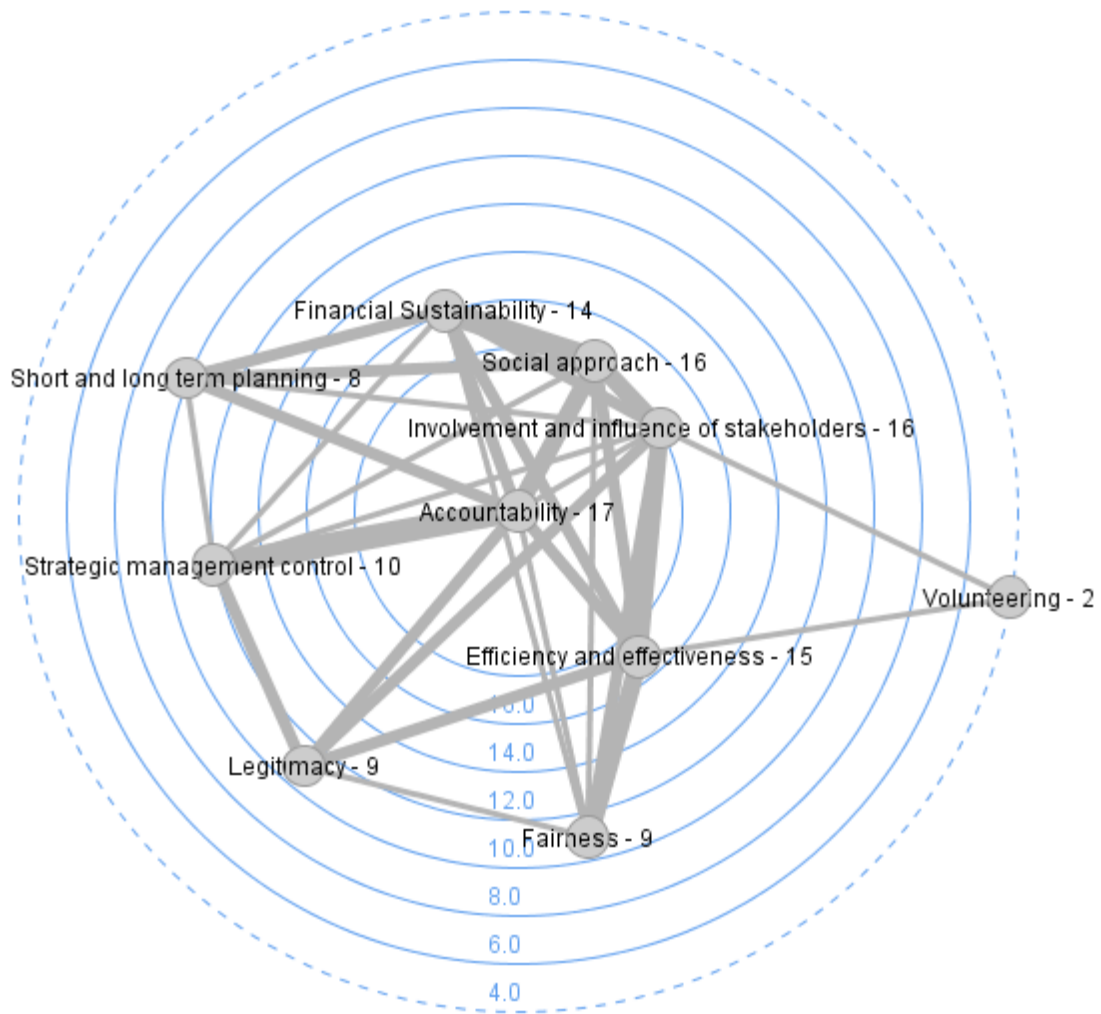


Figure 4: Network of the factors that influence the design of PMS for NPO and public administration organized by degree centrality

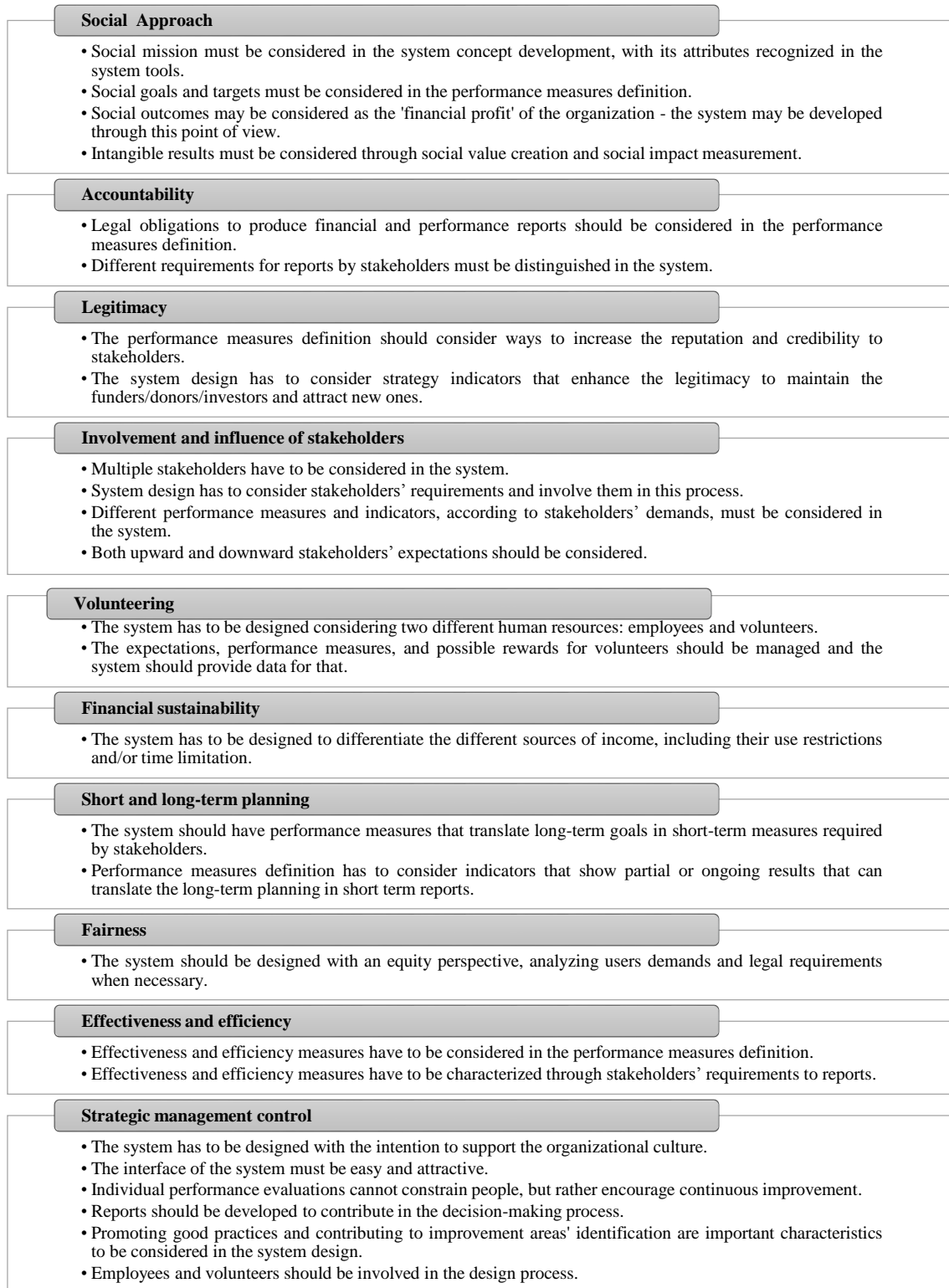


Figure 5: Practical implications for the design of PMS in NPO and public administration

Appendix A

Table A1 – References (authors and year of publication) mentioning each of the identified factors

Factors	Authors	Year of publication
Social approach	Arena, Azzone and Bengo	2015
-	Kroeger and Weber	2014
-	Ebrahim and Rangan	2014
-	Taylor and Taylor	2014
-	Cordery and Sinclair	2013
-	Sillanpää	2013
-	Grigoroudis, Orfanoudaki and Zopounidis	2012
-	Lane and Casile	2011
-	Perrini, Vurro and Costanzo	2010
-	Drews	2010
-	van Overmeeren, Gruis and Haffner	2010
-	Amado and Santos	2009
-	Duque-Zuluaga and Schneider	2008
Accountability	Noordin, Haron and Kassim	2017
-	Crucke and Decramer	2016
-	Arena, Azzone and Bengo	2015
-	Ebrahim and Rangan	2014
-	Moxham	2014
-	Cordery and Sinclair	2013
-	Connolly and Kelly	2011
-	Ebinger, Grohs and Reiter,	2011
-	van Overmeeren, Gruis and Haffner	2010
-	Moxham	2009
Legitimacy	Lall	2017
-	Nguyen, Szkudlarek and Seymour	2015
-	Arvidson and Lyon	2014
-	Moxham	2014
-	Cordery and Sinclair	2013
-	Conrad and Guven	2012
-	Connolly and Kelly	2011
-	Moxham	2009
-	Duque-Zuluaga and Schneider	2008
Involvement and influence of stakeholders	Pirozzi and Ferulano	2016
-	Arena, Azzone and Bengo	2015
-	Arvidson and Lyon	2014
-	Taylor and Taylor	2014
-	Kinder	2012

-	Conaty	2012
-	Conrad and Guven	2012
-	Grigoroudis, Orfanoudaki and Zopounidis	2012
-	Allen	2011
-	Drews	2010
-	Amado and Santos	2009
-	Duque-Zuluaga and Schneider	2008
Volunteering	Taylor and Taylor	2014
-	Duque-Zuluaga and Schneider	2008
-	Cnaan and Cascio	1998
Financial sustainability	Arena, Azzone and Bengo	2015
-	Taylor and Taylor	2014
-	Cordery and Sinclair	2013
-	Sillanpää	2013
-	Lane and Casile	2011
-	Allen	2011
-	Duque-Zuluaga and Schneider	2008
Short and long-term planning	Taylor and Taylor	2014
-	Jung	2011
Fairness	Arena, Azzone and Bengo	2015
-	Ebinger, Grohs and Reiter	2011
-	Amado and Santos	2009
Efficiency and effectiveness	Arena, Azzone and Bengo	2015
-	Moxham	2014
-	Taylor and Taylor	2014
-	Sillanpää	2013
-	Conrad and Guven	2012
-	Ebinger, Grohs and Reiter	2011
-	Lane and Casile	2011
-	Amado and Santos	2009
Strategic management control	Lall	2017
-	Noordin, Haron and Kassim	2017
-	Crucke and Decramer	2016
-	Pirozzi and Ferulano	2016
-	Nguyen, Szkudlarek and Seymour	2015
-	Ebrahim and Rangan	2014
-	Cordery and Sinclair	2013
-	van Overmeeren, Gruis and Haffner	2010
-	Moxham	2009
-	Duque-Zuluaga and Schneider	2008

Appendix B

Table B1 - Score of degree centrality

Factors	Degree centrality
Social Approach	11
Accountability	10
Legitimacy	7
Involvement and influence of stakeholders	10
Volunteering	2
Financial sustainability	9
Short and long-term planning	8
Fairness	4
Efficiency and effectiveness	10
Strategic management control	5

Cover Page:

Designing performance measurement system for nonprofit and public organizations: a study based on multiple cases

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Abstract:

The advance of research about the management control, performance measurement and management (PMM) points a concern to provide suitable systems in nonprofit organizations (NPO) and public administrations. However, few attempts have been made in order to understand these organizations and how their peculiarities influence this process. This research empirically discusses the features of the NPO and public administration through the lens of performance measurement and how these features influence the design of the performance measurement system (PMS), the first step for an iterative PMM. A case study with three NPO and three public administrations in the United States, Canada, and Brazil, provide valuable insights about the designing factors. The results point out that there are a variety of factors related to purpose, stakeholder, and management that can influence the design of the PMS and their unique organizational characteristics impact the usability and viability of the application of the PMS.

Key-words: design, nonprofit organization, performance measurement and management, public administration

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1. Introduction

Nonprofit organizations and public administration have different legal characteristics, but they resemble in aspects such as the pursuit of social value creation for their clients/beneficiaries. In recent years, these organizations have become under pressure to improve their management practices, their efficiency and effectiveness, and have sought to optimize performance measures with cost reductions, waste reduction, better allocation of available resources, professional motivation, volunteering, better channels of communication with stakeholders, and better practices for operations and services management (Popovich, 1998; Berman, 2014; Sinuany-Stern and Sherman, 2014).

Many studies have conducted initial investigations of performance measurement and management in these organizations, as can be seen in the works of Mouchamps, (2014); Lee & Nowell, (2015); Schwartz & Deber, (2016); and Bracci et al., (2017). Performance measurement is a conditional feature for management, and other studies are being extended to align performance measures definitions to the organizational strategy to provide a performance measurement system (PMS) that supports strategic management. In a recent systematic literature review (SLR) conducted to study the factors that influence the design of PMSs in NPOs, the bibliometric analysis showed that 240 articles were published from 1985 to 2015, with the majority (220 articles) published since 2001 (Leite *et al.*, 2016). Despite of this growth, the research area is not yet mature and there is no representative author associated with the topic. From the total of 525 authors of those 240 papers, only 33 published 2 or more papers, with 94% of the authors authoring only one paper.

Many different performance measurement frameworks have been developed and are well documented in the literature that may be applied in traditional enterprises, NPOs and in the public sector. But which framework fits best for each particular organization? Some

researchers argue that the frameworks developed for the for-profit enterprises do not work in NPOs or in the public administration context. Micheli & Kennerley (2005) argue that the Performance Prism, which focuses on a stakeholder perspective, has limited application for both NPOs and the public administration. Raus, Liu, & Kipp (2010) argue that the SROI (Social Return on Investments), derived from the well-known ROI (Return on Investments) concept, considers the social, financial and economic value, but not the operational and strategic value. Mouchamps (2014), in his study about the use of PM for social enterprises argues that the SROI, the Balanced Scorecard (BSC), and the GRI (Global Reporting Initiative) do not present enough features to meet all organizational characteristics necessary for a complete framework in the context of social enterprises. The study developed by Reda (2017) with higher education institutions indicates that the BSC does not capture the core organizational functions and that there was a low sensitivity of the system to the efforts in quality assurance procedures. In the study about BSC in local government organizations by Northcott & Taulapapa (2012), some managers reported difficulties to use the BSC even after an adaptation of its dimensions to their context. indicating problems such as the lack of specific perspectives for leadership and governance, and the difficulty of translating key elements of the framework to the public sector context, such as what are measures, inputs, outputs, and outcomes.

In another hand, some studies show that some PMM or PMS are successfully implemented in NPOs and especially in public administrations as the study about BSC in a French public organization, when Dreveton (2013) argues that the framework was successfully implemented and its use supports the organizational strategy, the routine, and the control management. Although many authors suggest that an NPO has unique characteristics compared to public and private sector, Moxham (2009) challenge this

understanding and argues that the essence of the frameworks developed for them can be applied in the NPO context too. Her findings suggest that the same drivers to use a PMS in private and public sector are present in NPO context: financial reporting, demonstration of achievements, operational control, and facilitation of continuous improvement. “The key difference was that the criteria used to measure nonprofit performance were seldom linked to performance improvement; this is contrary to the practices advocated in the private and public sector literature” (Moxham, 2009, p. 755). In a SLR performed by the author about third sector PMS design, three drivers emerged from the literature to the performance measurement in the third sector: accountability, legitimacy, and improvement of efficiency and effectiveness (Moxham, 2014).

Based on those perspectives, this paper has to goal to discuss the features of the NPO and public administration through the lens of performance measurement and how these features influence the design of PMS for them. For that, the paper presents the following research question:

- *What is the role that design factors play in the application of PMS in nonprofit and public organizations?*

Through a SLR and content analysis that identify 10 factors that influence the design of PMS for those organizations, this paper presents a case study with 3 NPOs and 3 public administrations to test and discuss the relevance and applicability of the factors to managers, academic researchers, and practitioners in the design process of PMS for both kinds of organization. The case study technique may offer the researcher an opportunity to a better comprehension of multiple and complex issues (Stuart 2002).

The results point out that there are a variety of factors related to purpose, stakeholder, and management that can influence the design of the PMS for NPO and public administrations and their unique organizational characteristics impact the usability and viability of the application of the PMS by them. Also, some design factors are particularly related to these organizations as the social aspects, volunteering and fairness.

2. Theoretical background

How to control the organizational management is a critical issue in the routine for any kind of business. As explained by Merchant & Stede (2017, p. 3), “management control failures can lead to large financial losses, reputation damage, and possibly even organizational failure”. The control is one step of the management process which includes objective setting, that can be financial and non-financial, strategy formulation, and then the management control. According to the authors, one huge problem in the management area for the NPOs and public administrations is the difficulty in measuring and rewarding performance because their social nature does not provide explicit quantifiable measures. The use of PMM systems offers to organizations ways to translate the strategy into performance measurable terms. The two components of a PMM, i.e., measurement and management, need to be designed to reach the strategy and support the making-decision which means that the performance management refers to a system that works through the performance measurement to manage the organizational performance (Bititci, 2015). Once the performance measurement is the input for the control, the PMS will contribute to the management of the strategy and results and support the performance management (Pinheiro de Lima et al., 2013).

In this way, it is crucial to delimitate what characterize a PMS in the context of this study. Once the performance measurement is a difficult task for the NPOs and public

administrations (Merchant & Stede, 2017), understanding their particularities and features will support the PMM design and implementation process. As cited before, there is no consensus about the usability of the frameworks designed to traditional for-profit organizations despite its advancement and use by so many organizations, large and small. According to Hoque (2014), the most studied PMS is the BSC and this framework presents 4 perspectives: financial, customer, internal business, and learning and growth (Kaplan & Norton, 1992, 1996; Inamdar *et al.*, 2000). The BSC was many times adopted or adapted for NPOs (Kaplan, 2001), and in some cases, the role of customer and mission was put at the top of the perspectives. One of the ratios used to measure the social impact, the SROI, “is a mixed method approach to assess the social, economic, and environmental impact of intervention” (Maier *et al.*, 2015). The Performance Prism proposes “a second generation measurement framework designed to assist performance measurement selection [...] that addresses the key business issues to which a wide variety of organisations, profit and not-for-profit, will be able to relate” (Neely, Adams & Crowe, 2001, p. 6). This model works with 5 interrelated facets: stakeholder satisfaction, strategies, processes, capabilities, and stakeholder contribution.

In fact, many studies show that the adaptations of some PMS were not enough to capture all particularities that involve the NPO and public administration even after adaptations (Micheli & Kennerley, 2005; Northcott & Taulapapa, 2012; Mouchamps, 2014). A SLR and content analysis previously conducted with the target to identify the factors that influence the design of a PMS in NPO and public administration shows that these organizations present particular characteristics that impact in the applicability and usability of the current PMSs (see Moura *et al.*, 2016). The outputs indicate a set of 10 factors distributed in 3 groups (purpose, stakeholders, and management) that can

influence the design of PMS for those organizations. Table I shows the factors and their description.

INSERT TABLE I ABOUT HERE

From these factors, it is possible to note that both NPO and public administration have unique characteristics compared with a for-profit enterprise which may impact the usability of the current PMSs, e.g., the social approach more than the financial profit and the accountability process. Also, it is possible to capture some reasons for understanding why some managers look with certain skepticism and resistance to use those systems in NPO or public context. Once the measurement and the performance management work in an interactive process, it is crucial that the PMS works to contribute and to impact in the strategy reach, looking at the organization as a whole.

This paper presents a case study with 3 NPOs and 3 public administrations to test this set of 10 factors identified through the SLR and content analysis and discuss their relevance and applicability as a practical guideline to managers, academic researchers, and practitioners in the design process of PMS both to NPO as public administration.

3. Research design

A case study approach was conducted to identify and review what is the role that the design factors play in the PMS of the studied NPOs and public administrations. The case

study allows the researcher to study deeply about a subject (Barratt et al., 2011) and this process was important to distinguish or identify key aspects of similarities between the NPOs and public administrations through the lens of PMS. Figure 1 shows the steps of the protocol.

INSERT FIGURE 1 ABOUT HERE

Define the scope the case study. Participating organizations (or a sub-unit within a larger organization) can represent any location, sector, or organizational size, should be nonprofit or public and should have implemented a new/redesigned PMS.

Develop the questionnaire to be applied in the case study. A questionnaire with 22 questions was developed based on the 10 factors (see Appendix A1) in order to support the understanding about each factor in the context of the organization.

Define the sources of evidence for data collection, record an interview, transcribe the interview, analyze available documents and records, and observe the organizational routine and procedures. For each participating organization, an individual interview with personnel who are involved with the performance measurement system, as producing data for performance measures, producing performance reports, and/or reviewing information from performance measures was done and transcribed. Also, the protocol collects evidence from documents, records, and observation to ensure the validity of the data.

Summarize the answers from all sources in a report for each organization. The answers from the interview using the questionnaire were triangulated with the data from other sources, as websites, annual reports, and spreadsheets, when applicable. All answers were summarized by organization to facilitate the analysis and report.

Group the answers from all organizations in a unique report and identify the similarities and differences from the answers for each factor. All answers were grouped by each analyzed factor. An analysis of the answers was conducted to identify the similarities and differences in the influence of the factors among the organizations.

Identify the similarities and differences from the answers for each factor. An analysis of the answers was conducted to identify the similarities and differences in the influence of the factors among the organizations.

Discuss the answers by the literature review for each factor. After summarizing all the answers and identifying similarities and differences, a discussion based on the literature review is presented.

Review the role that the design factors play in the PMS of the studied organizations. This step answers the research question: What is the role that the design factors play in some applications of PMS in nonprofit and public organizations? The results indicate that the factors play in different ways in the studied organizations suggesting that a factor can influence in different levels the design of the PMS. Also, the protocol points that some factors are present in the routine of the organization but, in some cases, are not being properly studied or considered which disrupts the development of a holistic system.

Six organizations from different countries participate in the case study developed in 2017.

Three NPOs and three public administrations were selected following the criteria:

- Prioritize the social mission;

- Use the performance measurement for making-decision;
- Be classified as public institutions; foundations or private institutions; cooperatives or associations; nongovernmental organizations; or social enterprise;
- At least one NPO and one public administration should work with volunteers;
- Should have implemented a new/redesigned PMS.

The next section presents the main findings of the case study including an overview of the organizations and the discussion of the outputs including a summary of the answers by factor followed by the review the role that the design factors play in the PMS of the studied organizations in the conclusions.

4. Findings

This section presents the overview of the organizations and a summary of the answers based on the questionnaire for each factor that may influence the design of PMS in a NPO or public administration.

4.1 Overview of the organizations

Table II presents a brief of the details of each organization in this study. The organizations are identified as:

- US.NPO.1: NPO from United States of America;
- BR.NPO.1: first NPO from Brazil;
- BR.NPO.2: second NPO from Brazil;
- US.PA.1: public administration from United States of America;
- CA.PA.1: public administration from Canada;

- BR.PA.1: public administration from Brazil.

INSERT TABLE II ABOUT HERE

None organization is volunteering-based but one works with the volunteers in its primary activity, and two of them work with volunteers in the secondary activities. Also, none organization has only one funding mechanism, but one source usually is the most relevant. For this set of studied organizations, the NPOs work based on projects and the public administrations based on a structure of institutional planning.

Two NPO are institute for research and development while the another one, the BR.NPO.1, is a foundation that works with the support of its main sponsor which is the creator of the institution. Although this foundation work with 9 paid employees, they have 800 volunteers under their management. It is a huge responsibility and illustrates the relevance of the volunteering management in these organizations. For the two institutes of research and development, the primary source of income is from their sponsors and contracts and, in some cases, they are eligible for government subsidies.

The public administrations work to the safety and prevention of accidents or disasters of the large public, i.e., the community, citizens, residents, and visitors. Two of them have the volunteering in their routine but not for primary activities. It is worth mentioning that the CA.PA.1 participates in a benchmarking network with other Canadian cities and often

compare themselves with other similar departments in Canada and the USA, which improves pretty much their performance management, strategy and making-decision.

4.2 Main outputs and discussion

This section presents a discussion of each factor that can influence the design of PMS in NPO and public administration and for that, Table III summarize all the answers from the 6 organizations in the case study captured through the interviews, observations, documents and records analysis.

INSERT TABLE III ABOUT HERE

The outputs point that some factors were not considered in the design of the PMS, as the use of PMS to support the legitimacy or the strategic management control, but the routine of those organizations indicates that they influence the management and their activities, so they could be supervised through the performance measurement. Besides that, the interviewers tend to admit their relevance and mention a concern about that for future management reviews.

The findings in the case study suggest that the no PMS is mature enough to consider all the set of factors. It is possible to argue that, in some organizations, a factor could not be significant to be drawn in the design process, e.g. volunteering and fairness. However, this decision has to be made after an assessment of the pertinence or not to the

organizational routine, especially if a new feature or indicator can help toward legal obligations, trust, management control or satisfaction.

Social approach

Both NPOs and public administrations in this study show that the social value and the social impact are not being properly measured in the organizations but the literature points how important those measures can be to get more investments, attract new investors or donors, improve the legitimacy and so on. However, the literature also indicates how difficulty is to define measures to social aspects. Also, there is a difficulty to gather community interests because of the high cost for that or by management interests to provide efforts for that.

The social approach in NPOs and public administrations is reflected in their mission focusing on social goals, social value creation, and social impact as a way to prove their effectiveness and to provide legitimacy. The concept of the value refers to costs which is connected to the operational efficiency (Kaplan & Norton, 2001; Porter, 2010). In a paper about public-private collaboration, Quélin, Kivleniece and Lazzarini (2017, p. 769) discuss the importance of the social value definition and argue that the literature has been pointing that the value is result of the “attainment of collectively defined preferences that are expected to emerge from collective decision-making and satisfaction of certain societal needs (such as quality education and health-care)”. The Porter’s study about value for health care sector shows that the costs and outcomes should be measured around the client which would increase the management analysis and the comprehension about the real need of costs allocation and the allocation the other resources adequately. The author explains the relevance of the value creation and argues that “if value improves, patients, payers, providers, and suppliers can all benefit while the economic sustainability

of the health care system increases” (Porter, 2010, p. 2477). Therefore, the value shall be measured by the outcomes and not by the amount of performed services.

In the study about Balanced Scorecard (BSC) and value-creating strategy, Kaplan & Norton (2001) discuss the adoption of BSC framework by governmental organizations. They argue that an agency can use the BSC and three more perspectives should be added in the financial and customer objectives: cost incurred (which emphasizes the operational efficiency and should consider the costs of agency and the social costs imposed on citizens), value created (which is the most difficult perspective to be measured and is related to the social benefits created for the citizens which one will judge the outputs versus the fees and taxes paid), and legitimizing support (especially the donors’ trust - or who provide the funding, and after, the credibility for citizens and taxpayers).

Sillanpää (2013) argues that the welfare services have difficulty to measure and to demonstrate the impact of their activities. Usually, they are financed by the public sector, and the services are offered in cooperation with multiple organizations. They propose a framework for a new impact measurement model that considers the service system level (tangible and quantitative impacts) and the individual level (intangible and qualitative impacts). They argue that the impact measurement in this context is complex and the “information on impacts related to different services is needed in order to select those that produce effective results at reasonable costs: i.e. are cost-effective. In order to assess the success or failure of new service models and interventions decision makers need information on their long-term impacts at various levels, i.e. at the individual and at the service system level”.

Clark & Brennan (2012) develop the conceptual framework for social entrepreneurship Proposed Balance Value Matrix (BMV), and they propose a dimension that examines the value creation measurement. The BMV considers the outputs, outcomes, and impact in a

context of stakeholders' involvement and the time. According to the authors, the impact is the most meaningful value for the beneficiaries. Although the outputs are delivered well-done, and the outcomes are considered obtained by the organization, the impact for the beneficiaries may not reflect all expected benefits. So, the measurement and management of the long-term impact should be adequately examined.

According to Karwan & Markland (2006) in the study about the public sector productivity, a delivered service will be characterized as valid when the outputs and outcomes are valuable for their clients/beneficiaries/users and how to distinguish this value is a principle in constant evolution in the management context.

In the study of PMS for social enterprises, Arena, Azzone & Bengo (2015) propose a framework for the system design and the information about the stakeholders' needs have to be collected including internal and external stakeholders as a step of the design process. Community and other municipalities were characterized as potential stakeholders to be helpful in the PMS design and information need definition. In the case study, the community is defined as a concerned stakeholder about the organization's activities. "These people do care of the quality of the service received but also of how it may impact the community positively and negatively. In term of performance dimensions, these stakeholders resulted interested mainly in management effectiveness, social effectiveness, and impact" (Arena, Azzone & Bengo, 2015, p. 665).

Clients, beneficiaries, users, costumers, taxpayers, government agencies, funders, partners and each stakeholder have their own set of goals, perspectives or interests when associating with an NPO or public administration. The different interests imply in a different performance assessment model required or a set of specific measures to monitor and report (Amado & Santos, 2009; Conaty, 2012). So, transforming community interests into performance indicators is highly encouraged.

A characteristic of an NPO and public administration is pursuing their non-financial mission once the financial value creation does not represent the organizational purpose and the performance measurement is focused in outputs, outcomes and impact (Cordery & Sinclair, 2013). Demonstrating results is a complex task for these organizations because it involves various circumstances and the accomplishment of social mission can be dependent on external variables. The performance measures definition should have a mission-oriented nature and it implies in a multidimensional analysis considering long-term impact and the social value creation.

Stakeholders want to know if their investments are being well-invested so the demonstration of achievement and the social mission reflected in the value creation are important ways to create legitimacy. However, some NPOs and public administrations measure their performance only to address external and legal requirements. If the NPO or public administration do not provide information about the mission achieved, the use of only financial or efficiency measures can depreciate the real social value creation considering intangible aspects, e.g., poverty reduction, improvement in education, improvement of the quality of life. For that, a performance measurement system with holistic perspective could contribute for the assessment of intangible results and performance management. According to Jones (2014, p. 120) “organization collect a variety of data to funders but fail to allot time to synthesize and discuss the data they collect”. The performance measurement without a mission-oriented design misses a lot of data that would contribute to reaching credibility and trust, and get new funders and donors. In this way, the social mission definition is crucial. The more abstract and general the mission definitions are, the higher the complexity in elaborating the measures, and related goals.

Accountability

Both NPOs and public administrations point the practice of the accountability and that the PMS provide information and contribute to attend requirements from external stakeholders.

Connolly & Kelly (2011, p. 234) argue that accountability can be provided in three different perspectives: legal (legal obligations for financial or performance reports for public administration, or funders), constructive (for increase the legitimacy and share the mission pursue with stakeholders), and voluntary (when the organization provide reports voluntarily for the stakeholders).

In this sense, communicate organizational data to external stakeholders can accomplish a legal obligation but also, increase the credibility and trust of community and sponsors or donors both for public administration and for NPO. Ebinger, Grohs & Reiter (2011) studied decentralization strategies and their impact on local government performance in Germany, France and England. They describe six performance dimensions related to legitimacy and equity, and in this context, the accountability is demonstrated. So, the democratic control and accountability present indicators related to formal gain in political competences, the factual gain in political leeway, the inclusion of organized interests, the inclusion of citizens and transparency. In NPO context, accountability can be seen as a result of professionalization and helps to overwhelm possible dubiousness about their efficiency by stakeholders (Ebrahim & Rangan, 2014; Moxham, 2014).

It is worth mentioning that some funders and donors recognize that information about social aspects is more important than financial data only, so accountability is an alternative to provide legal reports and measures that enhance legitimacy the organization (Cordery & Sinclair, 2013; Moxham, 2014).

Information about clients, efficiency and evaluation are relevant to improve the organizational culture. Externally, communication links NPO, public sector, collaborative organizations and stakeholders with information to dissemination and exchange (Dobmeyer, Woodward & Olson, 2002).

Methods and procedures can be developed to combine performance measurement and the accountability. Some organizations have to readjust their system to execute devices to accomplish internal controls and legal obligations. Besides that, NPOs can practice the constructive and voluntary accountability through the reports to bring new funding and maintain current funders. (Connolly & Kelly, 2011)

Legitimacy

Although none organization in this study use the PMS to support the process of legitimization, the literature points how its use can be helpful as a mechanism to increase the legitimacy, contributing to organizational promotion, and to attracting new funders and investments, or even to maintain the credibility and confidence of the population. Since these organizations recognize the importance of legitimacy and how a PMS can contribute to that, improve its characteristics can be an important feature to be regarded in the design of the system.

Besides that the legitimacy is seen as a perception by stakeholders as explain by Shuman (1995), legitimacy can be related to organization promotion too. Performance reporting, financial reporting, accountability (voluntary or not) and demonstration of achievement can contribute to organization promotion. Many organizations use these reporting and results of social impact like a strategy to attract more funders, new donors, volunteers or maintain the actuals, to assure credibility and to provide legitimacy to stakeholders (Clark & Brennan, 2012; Cordery & Sinclair, 2013; Arvidson & Lyon, 2014). Even public

organizations can seek legitimacy to improve and strengthen their opinion by citizens. In this sense, performance reporting can contribute to organizational promotion more than financial reporting (Cordery & Sinclair, 2013).

In a study about public sector collaboration in Malaysia, Ramadass, Sambasivan and Xavier (2017) explain that the community is very interested that these organizations be accountable and transparent which influence the public administrations and agencies to work together to provide public reports and outcomes. Conrad & Guven (2012) studied the national health service in the United Kingdom and showed that external agents might impose a PMS for the public administration. A new PMS was implemented which allowed the Department of Health to communicate legitimacy and to provide information about their performance. According to their case study, the English regulatory body imposed a PMS on their hospitals and some agents evaluated the process to design and implement it.

According to Crucke & Decramer (2016) and Moxham (2014), in some NPOs, the PMS is used with the sole purpose to legitimize their activities. Conrad & Guven (2012) emphasize that political interests may compromise the definition of performance measurement to achieve an expected level of legitimacy in public administrations, leading to inappropriate targets or consequences that may difficult the efficiency and effectiveness of management and the public service. So, with the goal to legitimize operations through reports and performance indicators, the PMS should be designed for this purpose.

Volunteering

Although not widely studied, volunteering is present in both NPO and public administration. None organization studied in this research provide a PMS that evaluate

the volunteers. However, the literature shows that they have different expectations when working voluntarily, and although not be paid, motivations and benefits can contribute to attract and value them.

Human resources to NPO can be composed by employees and volunteers. Not all NPOs or public sectors have volunteers as human resources, but some of them such as welfare services and humanitarian aid heavily rely on volunteers. They can be an attractive alternative to accomplishing some tasks, especially when the availability of resources is limited and financial restrictions to payments are imposed. Because of this, organization needs to know how manage their characteristics about motivation, available activities and life satisfactions from the recruitment to the evaluation and rewards (Cnaan & Cascio, 1998; Duque-Zuluaga & Schneider, 2008).

According to Chiang and Birtch (2012, p. 540), formally the reward can be fixed, as the salaries, and variable as “incentives contingent upon individual, group, or organizational performance” which means also include the intangible aspects including “recognition, alternate work arrangements, and training and development opportunities.”

The study of Cnaan & Cascio (1998) about performance and commitment to volunteers in human service organizations reports that people offer their service as a volunteer with the desire to help and do not involve themselves with business concerns. They listed 10 differences between volunteers and employees that help understand the characteristics of volunteering. The main differences are related to motivation, commitment, hours of work, benefits, and organizational characteristics.

Although the different expectations, volunteers should be included in performance measurement. In this way, volunteering is a strategical tool for organizational management in the PMS context of an NPO and the public administration.

Social services can be labor-intensive and this can interfere as to employees as volunteer motivation. In this context, monetizing volunteers can be complex and a barrier to maintain them (Cordery & Sinclair, 2013). As employees' participation in organizational process development, volunteers can be included equally (Duque-Zuluaga & Schneider, 2008; Taylor & Taylor, 2014).

Involvement and influence of stakeholders

The studied organizations show that the involvement of stakeholders and their requirements can affect the performance measurement and management in different ways as governmental and political issues, legal obligations or contractual aspects.

It is hard to meet accountability and performance measurement requirements for a large number of stakeholders of varied characteristics and with different interests (Taylor & Taylor, 2014; Pirozzi & Ferulano, 2016). So, it is possible to analyze the stakeholders by their influence and involvement in NPO context.

As a business model, the stakeholders of an NPO present different levels of influence into organizational management and routine, e.g. by regulatory agencies, and demands. In public organizations, the range of stakeholders, internal and external, and the necessity to provide equity outcomes among clients, users or beneficiaries are barriers to efficiency and effectiveness of NPO operations (Karwan & Markland, 2006). For some NPOs, government influences planning through exerting pressure on NPOs to perform and create social impact using their limited resources (Amado & Santos, 2009). Also, there are challenges related to political differences, legal problems, reduction of tax support, public concerns, and other issues that influence organizational planning and activities (Kong, 2010; Conaty, 2012; Mehrotra & Verma, 2015).

Political and governmental interests, funders, regulatory agencies, public sector commissioners, and legislative bodies may influence the measurement criteria both positively and negatively, requiring different targets or some forms of social impact measurement (Conrad & Guven, 2012; Cordery & Sinclair, 2013; Arvidson & Lyon, 2014).

The difference between stakeholders' influence and involvement demands a distinctive performance assessment framework and set of performance measures to be monitored and reported (Amado & Santos, 2009; Conaty, 2012; Cordery & Sinclair, 2013). There is increasing pressure for NPO and public administration to use practical management tools (Grigoroudis, Orfanoudaki & Zopounidis, 2012), but sometimes those organizations, especially the third sector, have demands imposed by funders, not by themselves (Cordery & Sinclair, 2013). Political and governmental interests, funders, regulatory agencies, public sector commissioners, and legislative bodies may influence the measurement criteria both positively and negatively, requiring different targets or some forms of social impact measurement (Conrad & Guven, 2012; Cordery & Sinclair, 2013; Arvidson & Lyon, 2014).

Taylor & Taylor (2014) present a research agenda with a stakeholder perspective focus to design a PMS for the third sector. According to them, this approach can contribute to value creation for stakeholders already in the strategy definition. So, Taylor & Taylor (2014, p.1382) argue that:

While no existing models or frameworks appeared to align in full with the distinctive characteristics of Third Sector performance measurement, one which adopted a process approach and a stakeholder perspective could be most appropriate.

According to Amado & Santos (2009), more research has to be conducted about performance considering stakeholders' expectations. As a framework for performance measurement, the Performance Prism was developed with the intention to adopt a stakeholder-oriented perspective and helps comprehend stakeholders' characteristics regarding their perspective and influence to the organization. The framework "makes an important distinction between stakeholder satisfaction – what the stakeholders want of the organization – and stakeholder contribution – what the stakeholders contribute to the organization" (Neely, Kennerley, & Adams, 2007, p. 152). Although the Performance Prism is considered useful to NPOs, Micheli & Kennerley (2005) point limited application of the Performance Prism in these organizations.

Financial sustainability

All organizations in this study manage their finances from alternative sources of income. However, almost all of them there is no way to control them individually and get performance indicators according to investments, donations or other sources which could help in the accountability and legitimacy process. Also, the management of their finances is very important for their financial sustainability which can be very influenced by external variables as political issues.

Financial sustainability through alternative sources of income is a challenging and critical dimension to be managed. Public administration but especially the NPO usually combine alternative sources of income like donations, subsidies, volunteering, public funders, philanthropic funders and, sometimes when is legally possible, sales of products or services (Cordery and Sinclair, 2013; Taylor and Taylor, 2014; Arena, Azzone and Bengo, 2015).

NPO characteristics include legal financial restrictions so they depend of donors, findings or subsidies. This dependence of resources can determine the organizational survival. Resources help an organization establish capacity that delivers public services (Dobmeyer, Woodward & Olson, 2002), so governmental divergences and tax support impact directly any NPO (Kong, 2010). Some organizations have collaborative partnership with companies because of their goal to reach social responsibility improvement (Kong, 2010). Because of legislation, resource providers don't have financial profit (Cordery & Sinclair, 2013). These financial characteristics involve a good strategy from NPO to obtaining resources (Duque-Zuluaga & Schneider, 2008).

This dependence on alternative sources of income has increased the interest of studies about performance measurement and management (Cordery & Sinclair, 2013). Funders, donors, investors, governments and regulatory bodies are concerned about how financial resources are used and managed by NPOs, so the PMS should be designed to include information this information for the stakeholders, delivering consistent reports to them.

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Short and long-term planning

The NPOs and public administrations work with critical issues related to the short and long-term. The planning can be affected by political or budget problems, and the measurement of long-term aspects can be complex.

NPO and public administration planning is affected for many variables including availability and limitation of resources (human, financial and materials), alternative sources of income, stakeholders interests, political interests and social demands (Kong, 2010; McEwen, Shoesmith & Allen, 2010; Arena, Azzone & Bengo, 2015; Mehrotra & Verma, 2015).

Hence in general long-term planning is not possible, mainly for public administration because of the political issues. Short-term planning is due from time-limited grants and subsidies, contracts to investments, uncertainty and insecurity donations from people and companies (Taylor & Taylor, 2014). This is a challenge to manage because in many cases the social impact can be seen only long-term (Moxham, 2009; Kong, 2010; Valentinov, 2011).

By the difficulty to match planning and stakeholders' requirements to reports, Jung (2011) indicates that many organizational goals are ambiguous and argues that they need to be clear and well-defined, including the difference between annual and long-term goals. Besides that, complex terminology, intangible factors, assessment of long-term benefits, and definition of expected impact are difficulties encountered by an NPO to define its measurement criteria (Moxham, 2009; Cordery & Sinclair, 2013). Also, the number of goals is a factor that can harm the performance measurement process if they are so numerous that they imply ambiguity and difficulty to establish priorities among them (Jung, 2011; Taylor & Taylor, 2014). In this perspective, PMSs should contribute to organizational management including more structured planning activities.

Fairness

None organization in this study has an obligation to work with the fairness sense but five of them indicate awareness to do that. Both for NPO and public administration was noted

a fairness concern but none performance indicator is developed to its validated in measurable terms.

Fairness or inter-local equity is a challenge to NPO, especially to public sector. Inter-local equity means to provide equitable social results and homogenous service level to beneficiaries or community throughout the same community, area, state or country. Equity in a public administration can be defined by the objective to provide regular services independently of the group, race, gender or other social characteristic and to provide equal access to services by a community (Amado & Santos, 2009). Inter-local equity means to provide equitable social results and homogenous service level to beneficiaries throughout the same community, area, state or country. In the social enterprise context, Arena, Azzone & Bengo (2015) indicate the fairness as a capacity of the organization to ensure products or services for all levels of society.

Measurement of inter-local equity horizontally involves “the ability to develop comprehensive and integrated policy solutions on the local level” (Ebinger et al., 2011, p. 562). Organizational capacity is necessary to produce outcomes and to maintain high levels of efficiency and effectiveness (Karwan & Markland, 2006; Ebinger, Grohs & Reiter, 2011).

Efficiency and effectiveness

While the efficiency index is very well conducted by the organizations, the effectiveness is not evaluated for the organizations in this study. Indeed, the definition of measures of efficiency and effectiveness in the social context of the NPOs and public administrations can be hard. Intangible measures and results are difficult issues to be managed and reported by them. Moreover, the use of PMS can be hard if its use is not very well defined and the people, sometimes, may look at as a competition or a way to assess personal

aspects. Despite this, all organizations in this study have a PMS that contribute to monitoring and development of performance reports.

How to measure performance in an NPO is not an easily answered question because the criteria are not defined in the literature. Also, usually the NPOs and some public administrations do not have financial resources to make information technology investments nor to realize data collection and analysis (Arena, Azzone & Bengo, 2015).

Although the increase the pressure to report the performance outcomes by stakeholders (Moxham, 2009), PMS evolution is not able to catch all dimensions about performance considering their dynamics and multiple goals. For that, is necessary understanding the social value for then become them in measurable terms (Arena, Azzone & Bengo, 2015).

Besides that, terminology confusing, intangible factors, assessing long-term benefits and expected impact influenced by stakeholders are difficulties for these organizations to define measurement criteria (Moxham, 2009; Cordery & Sinclair, 2013).

Efficiency for those organizations is a dimension that translates cost-efficiency of service production (Ebinger, Grohs & Reiter, 2011) and refers to operations, resources, and the delivery of outcomes and benefits to public services (Lane & Casile, 2011). For the public administration, the concern about efficiency is real and there is a pressure for some of them provide better reports. “Now public sector organizations are expected to be managed more like businesses, to be customer oriented, more focussed on outputs and outcomes rather than inputs, and to become more efficient and effective” (Sillanpää, 2013, p. 475).

Effectiveness in an NPO and public administration refers to the achievement of established objectives (Amado & Santos, 2009), but some organizations have difficulties to connect effectiveness measures to their PMSs and performance indicators (Moxham, 2009) and, in this way, to promote organizational improvement. Measuring the effectiveness of operations can be a particular challenge to NPO and public administration

if considering the variety of stakeholders' interests and requirements, especially to public sector activities (Karwan & Markland, 2006).

Kroeger & Weber (2014) argues that social value creation is not so well understood because of its intangibility. In the context of the social enterprise, for example, profit maximization is not a priority. When it is reached, however, all profit is reversed or reinvested in social goals (Kong, 2010). Social value creation is more important than economic profit and doesn't express a profit goal, but social impact (Perrini, Vurro and Costanzo, 2010). Sometimes the relationship between income streams and financial results may be non-existent or does not reflect good levels of profit (Lane and Casile, 2011), but this does not mean that social impact is not high.

In a study of public welfare service, Sillanpää (2013, p. 476) explains that while the social value concept is related to intangible results in a general perspective, e.g. the local economic gain, social impact measurement has the challenge to “comprehensively capture various impacts at different levels (e.g. impacts on the quality of life at individual level and on the costs at service system level)”. Traditionally, measurement of social impact is conducted by economic evaluations. As Arvidson & Lyon (2014, p. 881) put it, “the selection of suitable indicators is a particular challenge for those organizations that are using evaluation frameworks that monetize social impact and use a cost-benefit analysis approach.” However, the measurement of social impact is a complex task because it involves intangible results, community interests, and includes interpretation about unmeasured and unquantifiable dimensions that represent social value (Lane & Casile, 2011). Sometimes the relationship between services and income stream may be non-existent or yet don't reflect good levels of profit if compared with outputs levels (Lane & Casile, 2011) but this not means that the social impact was not high. Measurement way and how to quantify social aspects are a critical discussion both to NPOs and public administrations and have

a direct impact on governance, organizational culture, public dialogue, social impact, reports, organizational and individual assessment (Drews, 2010).

As involve intangible results and stakeholders interests, also accountability and legitimacy (Moxham, 2009; Arena, Azzone & Bengo, 2015), those organizations can use a PMS to try proving high performance, social value and trust (Micheli & Kennerley, 2005; Conaty, 2012).

PMS have to be integrated to routines activities of organization. Performance data and reporting have to be synchronized among organizational levels. Management reporting or performance reporting, for example, is required to transparency about resources, activities and governance by stakeholders (Ebrahim & Rangan, 2014), also to auditor and evaluators, specially by regulatory agencies, donors and community (Moxham, 2009). Internally, these same reports can contributes to organizational evaluation, operational control and resources management (Dobmeyer, Woodward & Olson, 2002).

Strategic management control

The performance measurement is an essential step for the performance management and will support the planning, control, and making-decision. Also, the literature points that the use of a PMS can be a strategic tool to improve the learning and continuous improvement. However, the organizations in this study do not use the PMS for this purpose properly. Only two NPOs use the system systematically but it is not available for all levels of the organization, and just in one of them the system supports the learning and continuous improvement efficiently.

Strategic management control refers to the organizational management involving the ability to learning and continuous improvement and, in this way, the PMS can be a tool for reach it. As Crucke & Decramer (2016, p. 3) explain “a performance measurement

tool can be used as an internal management instrument, enabling organizations to assess their performance and support internal decision-making”. Noordin, Haron & Kassim (2017, p. 925) argues that “an effective PMS serves as a platform for organizations not just to discharge their accountability but also to facilitate their management and internal control activities”. Nguyen, Szkudlarek & Seymour (2015) also explain that a PMS can support the learning and evaluation of the strategy to achieve the mission.

Performance measures can be used to manage and promote continuous improvement in any organization. Their measurement is related to activities developed by individuals and they should be designed incorporating characteristics to motivate learning and continuous improvement. Van Overmeeren et al. (2010) studied housing associations and their performance assessments and identified that one of the perspectives of the performance assessment frameworks in these organizations were learning and organizational improvement. Also, Gomes, Yasin, & Lisboa (2004, p. 524) argues:

The future of performance measurement, measures and systems must be viewed from a continuous improvement perspective. In this context, the PMS must be viewed as a collection of procedures, techniques, processes, and more importantly, people working together toward continuously improving the multifacets of manufacturing performance and measurement.

In addition to reporting performance and social impact to external stakeholders, a PMS can be used as an internal report to increase performance by organizational learning (Cordery & Sinclair, 2013). In this way, performance measures are a driver to continuous improvement and should be considered in the PMS design. According to Bond (1999, p. 1319) “performance measures (PMs) provide a mechanism for relating product or process

improvement policies developed by senior management to action at a local organisational level.”

4.3 Lessons learned

Table IV summarizes the lessons learned through the case study. First, the outputs suggest that the factors can play in different approaches. Fragments of interview or data collection support the understanding the outputs. Second, the outputs contribute to the better understanding about the factors, and so concerns and future research are indicated.

INSERT TABLE IV ABOUT HERE

This variability can be a result of the size of the organization, efforts to measure the performance and provide human and financial resources to that, the awareness of the importance to use the PMS as a tool and essential aspects as the accountability, and as well to managerial aspects as the strategic management control that contributes to the organizational climate and to rewards for employees and volunteers.

5. Conclusions

This paper had the goal to discuss the features of the NPO and public administration through the lens of performance measurement and how these features influence the design of PMS for them. From the results of a SLR and content analysis, a set of factors related

to purpose, stakeholders, and management was tested in 3 NPOs and 3 public administrations that support the knowledge about what are the factors that can influence the design of a PMS in the context of an NPO and public administration. In this way, it is possible to answer the research question:

What is the role that the design factors play in some applications of PMS in nonprofit and public organizations? The case study indicates that the factors can play in different ways to these organizations. The applicability of one factor can vary according to the external and internal aspects and influences. The results suggest that the set of factors should be considered as recommendations for the design of the PMS. In this way, the managers, practitioners and researchers must evaluate each factor considering the operational characteristics, the legal obligations, the organizational culture, and mainly, the organizational strategy focusing on the PMS as a component of the iterative process to the PMM.

Both literature review as the case study point that NPOs and public administrations have unique characteristics that differentiate them for the private sector. So, these characteristics will affect their organizational routine and, consequently, their performance measurement. The literature suggests that the adoption of traditional PMS was not so acceptable for many NPOs and public administrations. See Northcott & Taulapapa, (2012); Leotta & Ruggeri, (2017); Reda, (2017). The case study attests that these organizations present distinctive characteristics like the presence of volunteers in their activities or the concern about financial sustainability when involves alternative sources of income and legal restrictions in the using the resources.

Although there are legal characteristics that differentiate NPOs to public administrations, the case study points that in the context of the design of PMS, both organizations present

similar characteristics and can be evaluated considering their main approach which is the social concern to their audience. All factors are related to both organizations.

As a limitation of this study is to get the participation of an NPO or public administration that use a PMS. Some of them do not consider the PMS as a useful tool or do not have financial resources to design or implement it or do not have enough human resources to provide efforts to do that.

Despite the skepticism of PMS adoptions from the private sector or adaptations of them, as future research, the set of factors could be used as a guideline or criteria to assess the dimensions of those PMS. Once the set of factors are reflected in its design and corresponds to the organizational characteristics, the use of that PMS could be considered beneficial and applicable to the management control.

Some topics need more attention in the study about the performance measurement. The study of volunteering in the public sector is not strongly developed, but the case study confirms that some public administrations work with volunteers, even in not primary activities. So, more research about the volunteering and how to measure their performance and rewards the volunteers should be conducted. Besides that, once some NPOs work to provide services that sometimes the public sector is not able to do, the interest to work from a fairness perspective should be more studied too.

Studies must be conducted to develop performance measures that reflect the social approach, especially the measures about the social value creation and the social impact, and all intangible results that involve those organizations.

Finally, the factors can be applied in a survey with NPOs and public administrations in order to evaluate their applicability for all types of nonprofit and public organizations and how distinct they are from the private sector.

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Table I: Factors that influence the design of PMS in NPO and public administration

Group	Factor	Concept
Purpose	Social approach	<p>The description of social approach can be summarized in the key features involved in a public administration's and NPO's mission. The pursuit of social goals ahead of profit differentiates an NPO and public administration. The social value creation refers to the outcomes and tend to be intangible. The social impact will be intangible too, qualitative and its effect will be seen in long-term, i.e., the changes promoted by the organization as an improvement in the well-being of a patient or citizen. Although financial results sometimes do not show it, positive results through social value creation translates into social impact in the long-term, is an important index of the effectiveness and the capacity of these organizations to realize their mission.</p>
Stakeholders	Accountability	<p>Accountability is one of the factors that most concerns NPO and public administration and is a way of holding account and providing reports. Usually, legislation is the primary driver for accountability, mainly financial reports as a contractual or statutory obligation. External stakeholders such as regulatory agencies, funders, and governmental departments, are the actors to whom these reports are addressed. Legal financial reports are a critical aspect for these organizations because in some cases, stakeholders require reports in short-term, but social value and social impact can take more time to be perceived and measured. Accountability can also be used to attract new donors and funders.</p>
Stakeholders	Legitimacy	<p>Legitimacy in the NPO and public administration context can be defined as the perception by the stakeholders that activities are being properly developed, considering legal and contractual obligations, the goals and social mission. Legitimacy is motivated by a desire for organizations to be transparent and, through legal obligations and performance reports, promote themselves. Because of this, demonstrating their activities is an important mechanism to increase</p>

		legitimacy and to contribute to attracting new funders, donors and other stakeholders.
Stakeholders	Involvement and influence of stakeholders	Public sector, donors, public and private funders, community, regulatory agencies, tax authorities, beneficiaries, suppliers, partners, staff, and volunteers are examples of stakeholders that are related to the context of NPO and public administration. These stakeholders are involved with those organizations through funding, local needs, partnerships, and other motivations. They have a complex involvement with the organization and influence the management and organizational decisions, including the definition of performance measures.
Stakeholders	Volunteering	Volunteers contribute to the development of activities of public organizations and NPOs without contractual obligations but with interest in participating in social actions. They usually present different requirements and expectations compared to other internal stakeholders and will influence the management style and organizational culture.
Management	Financial sustainability	As the NPOs and public administrations has financial restrictions, and its focus is social value creation, their management is affected by that condition. Donations, investments, and subsidies are examples of sources of income. Some of these sources are not guaranteed for reasons such as political issues, and economic crises. So, it is a matter of organizational survival for an NPO and a public administration to maintain alternative sources of income to maintain their financial sustainability and provide their services.
Management	Short and long-term planning	NPO and public administration need to manage the instability of availability of resources influenced by the economic situation, political pressure, resources restrictions, need for inter-local equity and other problems. This context makes long-term planning more difficult and, depending on the situation, social impact can only be measured and assessed after several years.

Management	Fairness	The need to provide inter-local equity is a characteristic in some NPOs, and mainly in public organizations. For some of them, resources must be mobilized to provide a homogenous level of service, guaranteeing that social value creation promotes the same social gain.
Management	Effectiveness and efficiency	It is possible to conclude that characteristics like social mission, financial sustainability, intangible results, and multiplicity and involvement of stakeholders can contribute to the complexity of operations of NPO and public administration and influence their efficiency and effectiveness. Effectiveness refers to the achievement of social goals and its social impact, and efficiency is a dimension that translates cost-efficiency of service production and refers to operations, resources, and delivery of outcomes and benefits to the public.
Management	Strategic Management Control	The development of an environment open to learning and continuous improvement can contribute to the public administration's and NPO's promotion to stakeholders and create an organizational culture to measure its performance. In this context, a PMS can support the management and helps provide a way to organizational learning, and to promote continuous improvement through its use by all staff and volunteers.

Source: Adapted from Moura *et al.*, (2018)

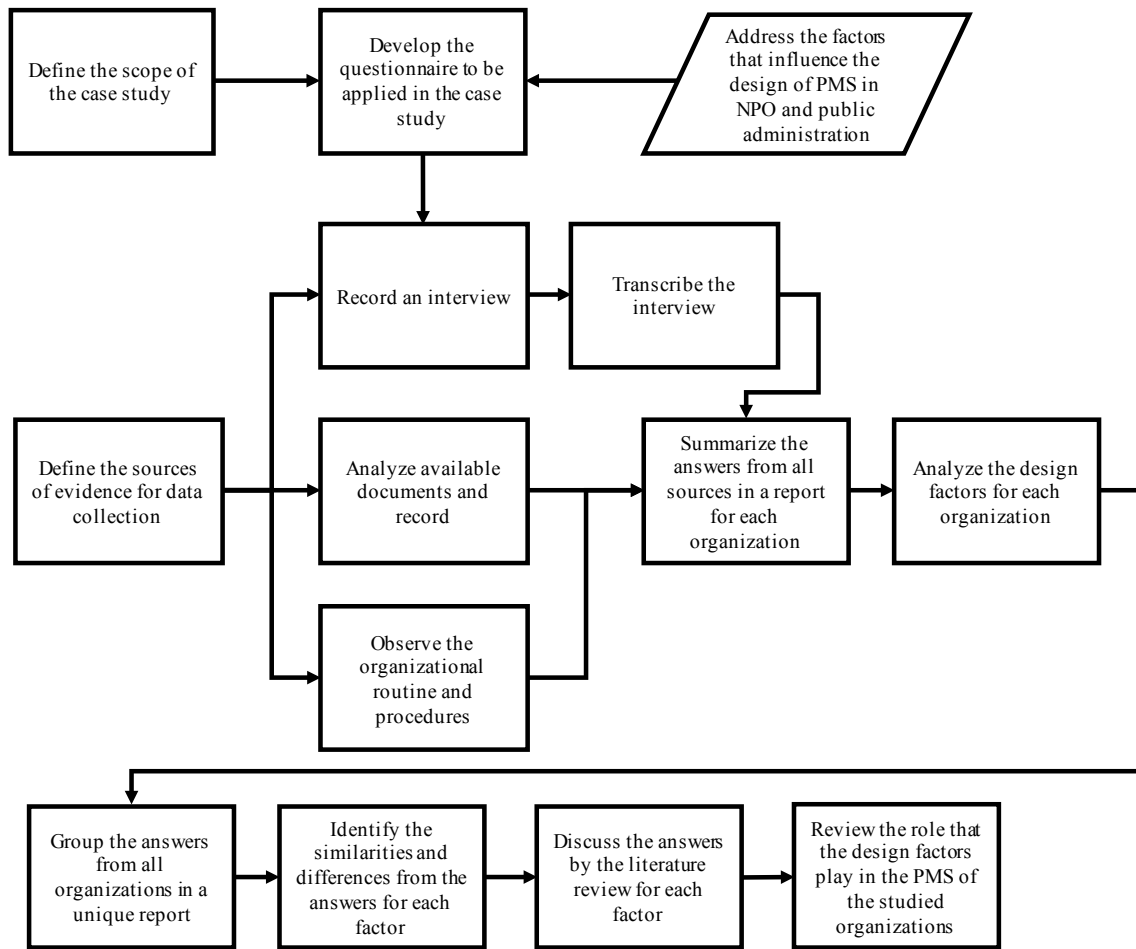


Figure 1: Protocol of the case study

Table II: Overview of the organizations

Organization	Activities	Structure	Beneficiary focus	Number of paid staff	Number of volunteers	Annual income	Funding mechanism
US.NPO.1	Research and development	Projects	National	453	Not applicable	US\$34,307,718	Mainly from contracts and sponsors
BR.NPO.1	Community-based projects	Projects	Local	9	800	Not available	Mainly from sponsors
BR.NPO.2	Research and development	Projects	National	Around 175	Not applicable	Around R\$30.000.000,00	Mainly from contracts and subsidies
US.PA.1	Safety	Institutional planning	Local	250	Not applicable	US\$ 22,000,000	Mainly from city taxes
CA.PA.1	Safety and fire prevention	Institutional planning	Local	Around 2800	Up to 50	C\$360,000,000	Mainly from city property taxes
BR.PA.1	Response and disaster prevention	Institutional planning	State	41	Up to 50	Not available	Mainly from state taxes

Table III: Summary of the answers by factor

Group	Factor	Summary of the answers
Purpose	Social approach	Both NPOs and public administrations in this study show that the social value and the social impact are not being properly measured in the organizations. Also, there is a difficulty to gather community interests because of the high cost for that or by management interests to provide efforts for that.
Stakeholders	Accountability	Both NPOs and public administrations point the practice of the accountability. The PMS provide information and contribute to attend requirements from external stakeholders.
	Legitimacy	None organization in this study use the PMS to support the process of legitimization. However, they recognize the importance of the legitimacy and that the PMS could help in this way.
	Volunteering	In this study, 2 public administrations and 1 NPO work with volunteers. However, none organization studied in this research provide a PMS that evaluate the volunteers.
	Involvement and influence of stakeholders	The studied organizations show that the involvement of stakeholders and their requirements can affect the performance measurement and management in different ways as governmental and political issues, legal obligations or contractual aspects.
Management	Financial sustainability	All the organizations in this study manage their finances from alternative sources of income, but almost all of them there is no way to control them individually and get performance indicators according to investments, donations or other sources.
	Short and long-term planning	All the organizations work with critical issues related to the short and long-term in this study. The planning is affected by political or budget issues, and the measurement of long-term aspects can be complex.
	Fairness	None organization in this study has an obligation to work with the fairness sense but they indicate awareness about it.

	<p>Efficiency and effectiveness</p>	<p>All organizations present efficiency measures but none for the effectiveness. Also, the difficult to measure and manage intangible results is cited beyond the difficult to create an organizational culture to use the PMS as a management tool and not as a competition or an individual control.</p>
	<p>Strategic management control</p>	<p>Two of the organizations use the PMS systematically but it is not available for all levels of the organization, and just in one of them the system supports the learning and continuous improvement efficiently.</p>

Table IV: Lessons learned*(a)*

Group	Purpose
Factor	Social approach
Outputs	<p>Seems a complex task measure intangible results as the social value creation and social impact in NPO and public administrations.</p> <p>In another hand, the definition of a social mission and vision is a well-established assignment.</p> <p>The following citations help this understanding about intangibility in the social aspects:</p> <p>US.NPO.1 says: “When you look to the micro level I would say that is really about our sponsors coming back and work with us. I think this is the huge indicator.”</p> <p>CA.PA.1 says: “We see the number of fires going down, we see the losses going down, we see the injuries going down. So, we are making progress. Are we being as effectiveness we could be? We hope so. And we can compare with other cities. That is probably the best how to comparing how we are doing with other cities, you know, our losses, our number of incidents, our, their equal to or lower than, the cities can compare with. So, comparability is probably the best indicator.”</p>
Concerns and future research	<p>Few studies are being attended to define performance measures, especially for intangible aspects related to NPOs and public administrations. Berenguer (2015), presents some metrics for the performance measurement in NPO by three perspectives: input metrics (costs, time, and donations), output metrics (effectiveness, equity, equality, and social welfare), and efficiency metrics (efficiency, flexibility, and sustainability).</p>

(b)

Group	Stakeholders
Factor	Accountability
Outputs	<p>The practice of the accountability is very well-established in the studied organizations. The PMS provide information and contribute to attend requirements from external stakeholders but could be developed more specialized tools to support this process that appears too manual.</p> <p>Examples can cited as the US.PA.1 that some specific kind of data is reported to an external stakeholder and then, this stakeholder uses this information to provide grants for the department. The BR.PA.1 cites that all their purchases and activities are reported on website of the state government according to the transparency obligations. Also, their own website provides some financial information.</p>
Concerns and future research	<p>How to transform performance measures into data to accountability reports should be more studied. Studies as developed by van Overmeeren et al., (2010) and Noordin et al, (2017) point that the accountability can present different perspectives and obligations by cultural or legal aspects.</p>

(c)

Group	Stakeholders
Factor	Legitimacy
Outputs	<p>None organization in this study use the PMS to support the process of legitimization. However, they recognize the importance of the legitimacy and that the PMS could help in this way.</p> <p>For the US.NPO.1, for example, although there is no intention to use the performance metrics to increase the legitimacy, the results of the organization and their credibility before strategic stakeholders provide legitimacy.</p>
Concerns and future research	<p>Legitimacy is a very significant issue to NPOs and public administrations regarding attract or maintain investments, and reach the trust of the public as a reliable organization. Even if the legitimacy is not the primary goal to use a PMS, some</p>

	tactics for use the performance measures could be designed to support the process of the legitimization, trust, and credibility.
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(d)

Group	Stakeholders
Factor	Volunteering
Outputs	<p>None organization presents a concern to measure the performance of the volunteers.</p> <p>The CA.PA.1 has volunteers working with some particular activities. They do not have the same training as the employees, and there is not any kind of performance indicator to them. Also, the BR.NPO.1 works with a lot of volunteers, but legal aspects are indicated as the main obstacle to doing that.</p>
Concerns and future research	<p>Measure the performance of volunteers can support the process of rewards and monitoring. How to reward and improve their performance is a critical issue and studies about this concern, especially in public administrations should be developed.</p> <p>Also, legally aspects should be considered in the design of PMS.</p>

(e)

Group	Stakeholders
Factor	Involvement and influence of stakeholders
Outputs	<p>Governmental and political issues, legal obligations and contractual aspects were the most cited issues by the studied organizations.</p> <p>For US.NPO.1 the lack of information can be a barrier to the communication with some stakeholders and to the legitimacy. So, in this way, some stakeholder can influence indirectly the organization to increase their way to disseminate reports or some data.</p> <p>For the BR.NPO.2 the stakeholders influence a lot in the management process as explained: “because they validate and define the whole strategic planning of the indicators [...]. If some stakeholders want to know about a specific metric, he can</p>

	influence what is measured and can require periodically in the monthly meetings” <i>(translated from Portuguese).</i>
Concerns and future research	How to manage all of them through a PMM is a critical question. Differences in the culture aspects in what and how measure need to be investigated as cited Conaty, (2012).

f)

Group	Management
Factor	Financial sustainability
Outputs	<p>Almost all of the studied organizations there is no way to control the sources of income individually.</p> <p>Because of the nature of the public organizations related to safety, none needs to manage their sources with the risk of no future investments but the amount of money can vary by political issues.</p> <p>The CA.PA.1 receives the most significant amount of money from the city. Usually, the others sources of income have specific goals.</p> <p>The BR.PA.1 has legal steps to receive resources from other sources behind the state funds but once the money is legally accepted, there is no distinction for the performance measurement.</p>
Concerns and future research	Financial sustainability is a critical issue to public administrations and especially to NPOs because of the concern with attracting and maintain funds, donations or investments. In this way, design a PMS that can fit tools to manage the different sources of income, support the short and long-term planning and control, and also produce performance measures according to each investment/source may be an interesting tool for these organizations.

(g)

Group	Management
Factor	Short and long-term planning
Outputs	<p>All the studied organizations work with critical issues related to the short and long-term.</p> <p>The BR.NPO.1 works with projects that can vary between 4 months to 2 years. The BR.NPO.2 reviews the strategic planning quarterly, and the strategic goals are reviewed annually. The CA.PA.1 plans for long-term which is considered around 5 years. However, there is not a long-term evaluation in terms of social impact and the political and budget issues can change the planning.</p>
Concerns and future research	<p>A critical feature in a PMS for these organizations could be the short and long-term aspect. This setting would support the planning and control improving the management and making-decision.</p>

(h)

Group	Management
Factor	Fairness
Outputs	<p>None organization in this study has an obligation to work with the fairness sense but they indicate awareness about it.</p> <p>The most expressive example is from BR.NPO.1 where they have the concern about applying their projects equally between man and women. “We try to balance in terms of the gender. In a project, we try to reach the 50/50, but not happens yet, but we try. We work to prepare the people for the jobs, so we try to give the opportunity to women. The industry lacks women for their insights and making-decision approach. For having more women in management level, we need more women working in the operational. So, we look for the social aspect too” (translate from the Portuguese).</p> <p>For the BR.PA.1 the fairness is perceptible in the planning of activities. They plan their actions based on demand, so who needs more, will get more help.</p>

Concerns and future research	The fairness is not very well investigated in the studies of the PMS for NPOs and public administrations. Studies about this characteristic could help the organization for the legitimacy, accountability and making-decision.
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(i)

Group	Management
Factor	Efficiency and effectiveness
Outputs	<p>Although the efficiency be a consolidate measure, the effectiveness is not so well-established in these organizations.</p> <p>The CA.PA.1 has efficiency indexes as ‘total fire cost per staffed in-service vehicle hour’ and ‘fire operating cost per vehicle run’. They use the efficiency indicators for management and benchmarking process.</p> <p>For the effectiveness aspects, an intangible awareness is present: “Sort of things we do we can see the impact but a lot of things we do, we just take on face; we know we are doing the right things and we see positive results getting better. [...] Heart attack survival is a good one. We know when that happens, someone has a heart attack probably will gonna die in seven or eight minutes. We know because our response getting fast with the defibrillator we save lives. It is very intangible; it is not big numbers but in the end of the turn we can say we save who would die if we hadn’t arrived. So, that is one of the areas is very intangible. The people is very exciting to ‘let’s put all our value on that, what is value of human life?’. Well, we say ‘forty of them... the value of human is one million dollars... and we save 40 million dollars’...”.</p>
Concerns and future research	The practice of the effectiveness measurement could be more investigated and its aspects of how to measure better detailed in the literature.

(j)

Group	Management
Factor	Strategic management control

<p>Outputs</p>	<p>The strategic management control is not very well-established in the studied organizations. Aspects related to learning and continuous improvement is not applied by the management.</p> <p>For the US.NPO.1 the use of performance measurement supports the learning and continuous improvement individually but not for everybody in the organization. Only those involved in each area of action being researchers or the like who have annual evaluations.</p> <p>In the BR.NPO.1 the use of the performance measures supports the continuous improvement and the individual evaluations, including the management of the rewards of the employees.</p>
<p>Concerns and future research</p>	<p>Aspects related to the strategic management control is an essential issue in private organizations. As the importance of performance measurement aspects is growing to be applied in nonprofit and public organizations, studies about this could be better investigated, even if their use with this purpose be a secondary goal. Studies of Ebrahim and Rangan, (2014); Nguyen, Szkudlarek and Seymour, (2015) and Crucke and Decramer, (2016) show that this concern is better consolidated in the social enterprises.</p>

Appendix A1

Group	Factor	Questions
Purpose	Social approach	<ol style="list-style-type: none"> 1. How are the social value and impact evaluated? 2. Are the community interests analyzed and transformed into performance indicators? How? 3. How do you assess if the mission is being accomplished?
Stakeholders	Accountability	<ol style="list-style-type: none"> 4. Are the data on performance measurement communicated externally? How? 5. Is the information generated in the system/spreadsheets used for accountability to stakeholders? How?
	Legitimacy	<ol style="list-style-type: none"> 6. Does the data generated and reported through the system contribute to the legitimacy of the organization? Does the use of the system have this purpose?
	Volunteering	<ol style="list-style-type: none"> 7. Is there access/metric/evaluation developed for volunteers? Which are they?
	Involvement and influence of stakeholders	<ol style="list-style-type: none"> 8. How can the performance measurement be influenced by the difference of interests and metrics for different stakeholders? 9. Has the system any adaptation in its design to meet some stakeholder requirement?
Management	Financial sustainability	<ol style="list-style-type: none"> 10. Does the performance measurement system manage the different sources of income?
	Short and long-term planning	<ol style="list-style-type: none"> 11. How does the system consider goals and outcomes for the short and long-term? 12. Was there any system/spreadsheets/procedures adaptation to meet a short or long-term request by a stakeholder?
	Fairness	<ol style="list-style-type: none"> 13. Does the organization meet some inter-local equity requirements? If yes, how is this procedure?

	Efficiency and effectiveness	<p>14. How is the efficiency measured?</p> <p>15. Are the criteria to measure the results well-established in the performance measurement system?</p> <p>16. How do you evaluate the effectiveness?</p> <p>17. Does the performance measurement consider intangible results? If yes, how is this procedure?</p> <p>18. How to indicate a positive result although the financial result does not show it?</p> <p>19. What are the difficulties to measure performance and work with these data?</p> <p>20. Does the performance measurement system allow for monitoring and generating of performance reports?</p>
	Strategic management control	<p>21. Is the performance measurement system available for use at all levels of the organization?</p> <p>22. Is the system developed to support learning and continuous improvement in the organization?</p>

Operations Management Research

An enterprise engineering-based revision of the performance measurement systems implementation and operationalization process

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An enterprise engineering-based revision of the performance measurement systems implementation and operationalization process

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Abstract

Research on Performance Measurement (PM) systems in the fields of organizations studies, management control systems and operations management has been maturing and provides a rich theoretical framework that informs structural/content and process-based management models. Literature shows that progress regarding use and application of these models, as complexity grows, is influenced by aspects related to organizational and management processes, people and technology. This paper presents a proposal for improving a PM systems implementation and operationalization process based on enterprise engineering (EE) guidelines, which gives the process a sense of completeness. For this, a well-known process for PM systems implementation and operationalization that is organized in 2 phases and divided into 10 parts is analyzed. The proposed improvements to the studied process derive from the EE guidelines, which establish a basis for the structure of an organizational management system, the formalization and synchronization of processes, performance expectations, exception handling and change management. The study reveals that not all EE guidelines are covered by the process, with 4 of them having no evidence of being adopted: involvement of people in process design and implementation; ensuring interoperability between different systems in the information structure; addressing of all possible exceptions; and coherence and consistency of semantics across all processes. The paper proposes new steps and objectives to be included and integrated in the process, for all enterprise engineering guidelines to be addressed by the process, given their importance and relevance for having a consistent and well-structured process.

Keywords:

Performance measurement; performance measurement system; enterprise engineering; implementation and operationalization process

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1. Introduction

In today's business environment of highly complex interactions, the use and application of Performance Measurement (PM) Systems by companies is influenced by aspects related to organizational and management processes, people and technology. According to Tay *et al.*, (2017), Nudurupati *et al.* (2011) and Binder and Clegg (2007), company success results from both the mobilization of internal competencies and the organization of external agents. The use of PM systems facilitates the comprehension of activities and operational flows, provides information about ongoing processes and strategy implementation, contributes to the monitoring of results and the environment (Pinheiro de Lima *et al.*, 2013) and the management of externalities (Poister *et al.*, 2014). As company strategy is affected and influenced by external variations, performance indicators must be reviewed according to their relevance to the strategy, requiring a measurement system that is efficient and able to take current circumstances under consideration. In this sense, there is a need to develop a suitable system to measure organization performance that accounts for these dynamics. Neely *et al.* (2002) states that organizational performance should be seen as a function of the efficiency and effectiveness of actions that are carried out by organizations. Organizational performance may be assessed by a process through a metric, or even a set of metrics, to quantify both effectiveness and efficiency. A PM system, to be considered dynamic, must be a system that monitors the external and internal environments, reviewing internal and external changes in order to evaluate priorities and objectives, and promote internal development to revise the priorities and objectives.

Hoque (2014) and Tangen (2004) point out that several PM systems have been developed throughout the years, with the most used and being the Balanced Scorecard (BSC). The BSC is a model that provides four perspectives: financial, customer, internal processes, and learning and growth. Its main characteristic resides in the integration of these four perspectives. For each of them, goals are defined by the managers and specific measures are designed to ensure the achievement of objectives. Ghalayini and Noble (1996) observe that despite being simple, the BSC downside is to focus on the top level, only providing a global view, not reaching the operational level. Suwignjo *et al.* (2000) consider that for a quantitative based measurement model and processes, the BSC is only valid when the internal and external environments are stable. It is necessary to acknowledge any alteration the soonest as possible so that the quantitative base of the model may be redefined and reflects the actual context, otherwise the model loses its main purpose. It is clear that some difficulty is noticed in the use of the model, as it requires the attention of the ones in charge so that the purpose is not lost, or unreal data is presented, harming the quality of decision-making.

For Nudurupati *et al.* (2011), there is still a lack of systems that allow high response capability and speed: most PM systems are historical repositories and static, they are not sensitive to intra and inter-organizational changes. There are few integrated systems, resulting in mostly simplistic systems, that are, however, difficult to keep and use, with delays in the classification of information and generation of results. These systems hardly ever have the support and commitment of the whole organization, as they are, in general, not implemented through participative management, being characterized by as a mechanism of command and control of people. Bititci *et al.* (2012) suggest future research on PM to adopt a more interpretative approach to the understanding of the mediation of performance as a holistic, integrated system within an emerging context.

In this context, the view of enterprise engineering can help both the diagnosis and the redesign of PM systems to incorporate missing functionalities that provide a dynamic model that can be operated in a complex environment. Modelling systems to deal with organizational complexities is one of the focus of enterprise engineering. Hoogervorst (2009) define that enterprise engineering aims to understand the company in its complexity, from creation and conception throughout its development, seeking the generation of knowledge and methodologies. As Kosanke *et al.* (1999, p. 85) argue that enterprise engineering "define, structure, design and implement enterprise operations as communication networks of business processes, which comprise all their related business knowledge, operational information, resources and organization relations". Also, Barjis (2011) sees enterprises as a social systems, and their study through enterprise engineering is seen as an interdisciplinary field, covering a view of three theoretical bases: organizational sciences, information systems sciences, and systems engineering.

Taking into account the listed requirements for PM systems design, in terms of integration, responsiveness, adaptability and readiness, a research question is formulated: how can one guarantee that a PM system does not

1 become obsolete, so that capabilities are developed for keeping it updated in a complex and dynamic environment?
 2 Could enterprise engineering principles contribute for a ‘complete’ approach for designing a PM system?

3 Deschamps *et al.* (2013) identified 12 guidelines towards enterprise engineering initiatives. These guidelines
 4 approach issues related to process formalization, organizational structure, coordination and synchronization of
 5 processes, explicit considerations on performance expectations, treatment of exceptions, and incorporation of
 6 change mechanisms and/or improvement. Therefore, it establishes the base for a consistent structure of an
 7 organization system to reach the maximum potential of its objectives. Enterprise engineering defines a
 8 methodological approach, thus, the research strategy proposed in this paper consists of listing this set of guidelines
 9 to be used as a diagnosis and re-design tool for organizations, together with a process approach for the development
 10 of a PM system. In this paper, the PM design process proposed in the book “Strategy and Performance: Getting
 11 the measures of your business”, by Neely *et al.* (2002), which describes how an organization, from its business
 12 strategy, can establish adequate organizational communication for checking the implementation of its strategies
 13 and reevaluate the adopted strategy was chosen. This process is called the PM systems implementation and
 14 operationalization process. The book is a handbook with step by step actions to be used and developed with
 15 descriptions that focus on practice. 10 parts define the steps with the aim to provide the readers with a view and
 16 knowledge of their organizations and how PM systems characteristics may be defined.
 17

18 This paper aims to verify whether the enterprise engineering set of guidelines is covered by the PM system
 19 implementation and operationalization process, proposing how missing guidelines can be addressed through the
 20 modification of existing parts or the incorporation of new parts to the PM system process developed by Neely *et al.*
 21 (2002). The objective is to end up with a holistic approach for developing a PM system according to enterprise
 22 engineering principles.
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 26

27 **2. PM design and Enterprise Engineering**

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 29
 30
 31 This section precedes the analysis and of the application of enterprise engineering guidelines in the PM systems
 32 design process. It presents insights about PM systems requirements, how enterprise engineering can help in the
 33 diagnosis and redesign of an organizational system, and the enterprise engineering guidelines used as one of the
 34 basis for this work.
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 38

39 **2.1 Performance measurement systems requirements**

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 42
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 44 Systems might vary regarding the way they integrate information, operations and strategy. A systematic literature
 45 review carried out by Wieland *et al.* (2015) about processes in performance measurement systems points out that
 46 these systems should be aligned to the strategy in order to provide content for goals, metrics, tools and governance.
 47 In fact, as observed by Munir and Baird (2016) and Folan and Browne (2005), a PM system must have managerial
 48 support, involve employees in the development of indicators, present relevance to the workers’ everyday practice,
 49 take part in the feedback of evaluation processes, contribute to strategic decision-making, planning, and control of
 50 assignments to succeed in its goals.

51
 52 The study of Munir and Baird (2016) about the influence of institutional pressures on PM systems shows that
 53 contemporary systems, i.e. a PM system with financial and non-financial metrics, are not broadly used by
 54 enterprises and public organizations. Their empirical results point out that the studied organizations had to adapt
 55 their PM systems to meet stakeholders and regulatory requirements. Hence, in practice, the design of PM systems
 56 is influenced by internal and external factors, with more diverse and multi-dimensional performance measures
 57 used, as also highlighted by Ross *et al.* (2010).

58
 59 According to Chenhall (2005), strategic feedback provided by PM systems is the basis to improve competitiveness,
 60 both by product differentiation and cost competition. According to Parida *et al.* (2015, p. 4) “two key components
 61 need to be considered to move from performance measurement to performance management: the right
 62 organizational structure, which facilitates the effective use of PM results; and the ability to use PM results to bring
 63
 64
 65

about change in the organization". Bourne *et al.* (2000) add that PM systems require effective mechanisms of target and pattern revisions, besides individual measurements which are adaptable to circumstances, and mechanisms that periodically evaluates the set of measures and that can be used to evaluate strategic assumptions.

It is a challenge to present an adequate PM system considering all internal and external (when applied) requirements. Kennerley and Neely (2003) explained that a well-designed PM system follows an evolution cycle based on:

- a) processes: for revision, changes and measure implementation;
- b) people: with competence to use, reflect, modify and implement measures;
- c) systems: flexible and available for collection, analysis, and processing of information;
- d) culture: bearing in mind the importance of measurements.

The literature review conducted by Bourne *et al.* (2005) reveal seven factors associated to key processes in the use of performance measures that should be considered in PM system design: the linking to strategic objectives; the method of data capture; data analysis; interpretation and evaluation; the provision of information and communication; decision-making; and taking action. For Gomes *et al.* (2004), the focus on organizational effort must be seen from the perspective of continuous improvement, not only on productivity or employees' efficiency.

Considering the presented context, the design of PM systems should be established on a consolidated basis that meets all needed dimensions, drivers, and requirements.

2.2 Enterprise Engineering guidelines

Deschamps (2013) considers that the study of enterprise engineering could help the diagnosis and the redesign of PM systems to incorporate missing functionalities considering a dynamic model. The enterprise engineering discipline includes several research topics and contribution areas, namely modeling, optimization, analysis, business processes, information systems, organizational design, structure and organizational objectives, among others, which makes the term very broad. In this context, Giachetti (2004, p. 1149), define that enterprise engineering works "to model, analyse and design enterprise systems". Bernus *et al.* (2016) complements this knowledge explaining that beyond providing information for the design and redesign of businesses, enterprise engineering also provides knowledge about then integrated flow of knowledge and material, supported by enterprise modeling. As Kosanke *et al.* (1999) explain, enterprise engineering concerns itself with the enterprise's whole operations to improve efficiency and effectiveness through the integration of people, machines, and computers.

An enterprise engineering guideline is defined as a design principle related to the definition, structure, conceptualization or implementation of operations or business processes as communication networks. The set of enterprise engineering recommendations proposed by Deschamps *et al.* (2013) established 12 guidelines, listed in the Table 1.

[Table 1 here]

An example of the application of the 12 enterprise engineering guidelines is the research developed by Silveira *et al.* (2017), in which it is proposed a structured process for Hoshin Kanri implementation based on a strategic management framework that integrates strategy and operations execution. Deschamps *et al.*'s (2013) enterprise engineering guidelines contribute to this process design task by making it consider a more comprehensive approach.

3. Research design

In this paper, the process described in the book “Strategy and Performance: Getting the measure of your business” by Neely *et al.* (2002) is assessed through the lens of the enterprise engineering guidelines identified by Deschamps *et al.* (2013). The book is organized as a handbook to facilitate the understanding, implementation and operationalization of a PM system suitable to an organization. Two phases are proposed, as shown in Figure 1.

[Figure 1 here]

In order to fulfill the two phases, the authors propose a 10-part process, in which the first phase comprises the first 5 parts and the second phase the other 5 parts. Each part contains a set of objectives, as listed in Table 2.

[Table 2 here]

The analysis that was conducted comprised examining the objectives of the PM system implementation and operationalization process to determine whether all of the guidelines were fulfilled. The analysis procedure is portrayed in **Error! Reference source not found.**

[Figure 2 here]

This way, out of the total of 12 enterprise engineering guidelines, it could be concluded that 4 of them are not covered by any objective of the PM process. Next section shows the guidelines that were associated with process objectives, and the guidelines that are not covered by any of the objectives. Then, new objectives for the PM system implementation and operationalization process are proposed so that all guidelines are fulfilled.

4. Results

Table 3 shows evidences of the association between the enterprise engineering guidelines listed in Table 1 and the PM system implementation and operationalization process objectives listed in Table 2, after application of the procedure depicted in Figure 2. Evidences were found for guidelines #1, #3, #4, #6, #7, #8, #10, #12.

[Table 3 here]

1 Associations between enterprise engineering guidelines #2, #5, #9 and #11 and the objectives of the PM system
 2 implementation and operationalization process were not found. These guidelines are individually described in next
 3 section.
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 5
 6

7 **5. Discussion**

10
 11
 12 This section takes each one of the enterprise engineering guidelines that was not associated with any of the
 13 objectives of the PM system process in Section 4 and provides literature evidence as how to consider them for PM
 14 system implementation and operationalization. Building from this literature, the next section proposes new phases
 15 and objectives with the goal of revising the PM system implementation and operationalization process so that all
 16 guidelines are covered.
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 19
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21 **5.1. Guideline 2: People involved in a process must participate in its design**

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 23
 24 According to Deschamps *et al.* (2013, p. 812), “a recurring point in works suggesting how to proceed in the
 25 modeling of enterprise systems, (...) is the involvement of people as a principle in most excellence models and
 26 (...) the engagement of people in enterprise transformation initiatives”. According to Gomes *et al.* (2004), the
 27 organizational effort to measure performance must be approached as a complete system, mainly because it affects
 28 individuals’ motivation. It is necessary to comprehend each individual as a fundamental part for organizational
 29 development and hence identify the ideal system for each organization.
 30

31 Nudurupati *et al.*, (2011) observe that the measure of success of a PM system is in the change in behavior that it
 32 generates towards a progressive performance improvement and organizational culture change. The use of a PM
 33 system might be followed by positive behavior by the people who use it, showing proactivity and commitment to
 34 continuous improvement, but can also be followed by resistance and bad use of information.
 35

36 The study of Taylor and Taylor (2014) present a research agenda for PM systems design for the third sector based
 37 on a stakeholders’ perspective. They argue that PM systems should be developed to include learning and
 38 continuous improvement. In this way, the participation of employees is essential to minimize the resistance to use
 39 a PM system, because very often staff tend to resist the introduction of a new or complex software, as observed by
 40 Cordery and Sinclair (2013) and Arvidson and Lyon (2014). Also, stakeholders usually have their own
 41 requirements for PM, and organizations in the third sector, public sector, social enterprises and the like, for
 42 instance, tend to mold their systems to what is acceptable by them in relation to accountability and legitimacy
 43 practices (Karwan and Markland, 2006; Amado and Santos, 2009; Arvidson and Lyon, 2014, Um, 2017).
 44

45 Arena *et al.* (2015) and Kinder (2012) suggest that the process for designing or re-designing a PM system could
 46 be triggered by the intention to improve technologically, to provide innovation or to increase usability, but in many
 47 cases, because of the lack of positive evidence, there is no commitment to provide adequate or sufficient human
 48 and financial resources for system design, what can also impact on people’s resistance.
 49

50 In the studied process, there are moments that require the participation of people. Phase 2 in the PM system
 51 implementation and operationalization process under study includes the participation of people involved in the use
 52 and review of performance measures. In the end, the organizational objectives must be explained to these people,
 53 as well as how progress is being measured. In Phase 1, Objective 4.1, people involved must be consulted to
 54 determine whether they agree or not with the proposed measures. However, guideline 2 proposes a broader and
 55 more effective participation, considering people involvement from system conception, which should start since
 56 the beginning of Phase 1. The participation of employees from earlier stages enhances competences and helps
 57 them grow and develop as members of the organization.
 58

59 In this sense, it is necessary to identify a more effective involvement of participants, and somehow, the ‘facilitator’
 60 could be a bridge between the organizational objectives and everybody’s vision in the organization, without,
 61 however, hindering participation, but encouraging collective effort, creating cohesion, improving morale and
 62 administering interpersonal conflicts.
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 64
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5.2 Guideline 5: Information structure must be based on open standards to ensure interoperability with different systems

Interoperability has been shown as one of the main aspects linked to enterprise engineering, with a vital role in any business considering the advance of cyber-physical systems and other technologies. According to Panetto et al. (2016, p.47), “although industry has responded to the interoperability challenges with the development of collaboration interfaces and integration mechanisms, such development may become unsustainable with the rapid growth in the variety of system architectures”. Interoperability guarantees that all parts involved share information through the same structure, providing minimization of interpretation errors and facilitating communication and learning. Chen and Vernadat (2004, p.249) state that “from a software engineering point of view, interoperability means that cooperating pieces of software can easily work together without any interfacing effort. [...] More broadly speaking, achieving interoperability implies defining between two cooperating entities (be they software applications, processes, organization entities, ...) a standard way of sharing their capabilities and needed information”. As summarized by Panetto (2007, p.728) “interoperability is the ability of different types of computers, networks, operating systems, and applications to work together effectively, without prior communication, in order to exchange information in a useful and meaningful manner”. So, when the system is interoperable, it means that the system can obtain and share data efficiently.

However, to leverage interoperability, it is necessary that open pattern systems are used, as they are more accessible ones. According to Deschamps *et al.* (2013, p.812), “the use of open standards is a strong catalyst to interoperability, as it ensures that both parties involved in an exchange will have the same information structure, facilitating it. Enterprise reference models are open-standards *per se* and most of them have information as one of their standardized elements”. Some barriers might appear that hamper interoperability, such as those regarding the incompatibility of systems (platforms, architectures, infrastructure). Organizational particularities also might present barriers, as for example, when the company has confidential information that might alter the quality or veracity of available information. Therefore, as observed by Whitman *et al.* (2006), it is necessary that the components in the system permit the exchange of data, resources and information regarding the organizational processes so that a defined semantics, regardless of the organizational particularities such as data format or interfaces, can be presented. Thus, more than only data exchange, interoperability enables the execution of operations in another system.

There are many different ways to assess the interoperability of a system. The LCIM (Levels of Conceptual Interoperability Model) defines 7 different levels to characterize interoperability and is described by Turnitsa (2005). The first one, level 0, refers to ‘no interoperability’. Level 1 refers to ‘technical interoperability’, which means that there is an exchange of data from one application to another. Level 2 refers to ‘syntactic interoperability’, when a protocol is created to the use and exchange of information. Level 3 refers to ‘semantic interoperability’, when the system uses a common information exchange reference model. Level 4 is ‘pragmatic interoperability’, when there is a concern with the applied methods and procedures. Level 5 refers to ‘dynamic interoperability’ and in this level, the system is able to work on data over time. Level 6, ‘conceptual interoperability’, refers to the highest level of interoperability, when the system works based on engineering methods. For Panetto *et al.* (2016, p. 52) “enterprise interoperability maturity can be measured in two ways: a priori, where the measure relates to the potential of a system to be interoperable with a possible future partner whose identity is not known at the moment of evaluation, and a posteriori, where the measure relates to the compatibility measure between two (or more) known systems willing to interoperate or to the measurement of the performance of an existing interoperability relationship between two systems”.

In this way, it is essential that the PM systems be designed with an information structure that guarantees interoperability with different systems. PM systems, as stated by Poister *et al.* (2014), contribute with information for managers monitoring performance. Kim (2013) and Toni and Tonchia (2001) consider that in companies involved in the process of integration, a suitable PM system is an essential factor in the sustainable development of these organizations since it helps to verify the achievement of common objectives, at the same time it promotes alignment of goals. Thus, a synergy effect can be created by seeking global performance improvement of the integrated companies, leaving in background the isolated performance of each company. In this scenario, Alfaro *et al.* (2009) argue that the correct design of the lifecycle of a PM system is essential to enhance interoperability of the extended business processes characterizing a collaborative environment. For the authors, the definition of interoperability criteria is crucial to analyze if business processes are being efficient and effective.

No part of the reviewed PM system implementation and operationalization process presents an objective that covers interoperability. Actually, although some research has been developed regarding performance measurement in a collaborative environment, e.g. Extended Enterprise Performance Measurement model proposed by Bititci *et al.* (2005), including intrinsic and extrinsic inter-enterprise coordinating measures, studies about PM systems that

investigate business process interoperability are not common in the literature, as indicated in the literature review performed by Alfaro *et al.* (2009).

5.3 Guideline 9: Process design must address different types of exceptions

According to Deschamps *et al.* (2013, p. 813), “there should not be exceptions throughout the process execution, but when one exception is considered, a procedure should be established to deal with this circumstance. Dealing with the unpredictable must be considered in organizational systems”. For Kurz *et al.* (2013, p. 123) “while the term exception suggests that these deviations from business processes are only occurring rarely, exceptions are a normal part of business process execution. However, so far documented and applied methodologies, IT systems and procedure models seem inadequate for their effective and efficient management.”

In systems programming, for Schildt and Skrien (2013), there is the concept of exceptions treatment, which implies in identifying unusual situations during systems execution and treating them. It is important to consider what an exception is to understand this guideline. Kurz *et al.* (2013, p. 147) distinguish an exception in three types of events: “the type of events that must be handled in a process which are known and for which the corresponding reactions are also well-defined (routine exceptions); the types of exceptions which are known, but for which the corresponding reactions cannot be strictly defined (minor exceptions); or the type of exceptions that are not known and for which the reactions are not defined in advance (major exceptions)”. Larman (2007) distinguishes exceptions in defect, error, and fault:

- Defect: origin or cause of bad behavior, e.g., a programmer typed the database name incorrectly in a program’s source code.
- Error: appearance of a defect during execution, e.g., when calling the program to obtain a reference for the database (wrongly typed), it points the error.
- Fault: denial of service due to an error, e.g., a seller cannot register an order in the system because when registering it, it cannot link to the correct database.

According to Larman (2007), when approaching different kinds of exceptions, the distinction between exception launch and exception treatment must be considered. For exception launch, where the error occurred and the context involved are considered. For exception treatment, the register of a failure (either centralized or distributed) and the user notification are considered.

It is necessary to consider prevention of errors, fault, defects and other undesirable situations in an organizational system. Thus, according to Calazans and Oliveira (2005), systems maintenance must be provided. Maintenance can be classified as corrective (removal of design, logic and codification errors or faults in the system), adaptive (making necessary changes regarding the external environment), evaluative (improving functionalities already in use according to the data gathered by developers and users) and preventive (considering changes of internal and external environments in advance). Antunes (2011) analyzed the exception treatment in BPM (Business Process Management) with a focus on resilience and concluded that the “automated exception handling is crucial to increase the organization's capability to resist expected exceptions. However, when other types of exceptions occur, human intervention is always required, and workers become a fundamental component supporting organizational resilience”.

Despite the existence of Objective 4.1: verify whether everybody agrees with all high-level performance measures; Objective 9.1: verify whether all members of the organizational teams agree with the measures they will use; and Objective 10.2: set a mechanism for the revision of performance measurement system, they do not comprise the verification and improvement of the system and exception handling. The focus of these objectives is limited to the performance measures, and Guideline #9 encompasses a broader vision of review and system improvement from the moment the organization realizes the existence of exceptions, i.e., situations that would need intervention to be corrected.

5.4 Guideline 11: Process semantics must be coherent and consistent throughout all processes

1 Deschamps *et al.* (2013, p. 813) refers to how proper semantic embedded into a process impacts its execution: “for
2 a process to be consistently executed, proper terminology must be used among all processes and throughout the
3 life cycle of a process. This enhances communication and the interaction among involved people. This guideline
4 is supported by most reference models, which establish these semantics in their definitions”.

5 In the development of a PM system, Folan and Browne (2005) consider that the existence of a proper language is
6 expected, in particular a comprehensible one, for everybody in the organization to be able to understand what is
7 being measured and how it is being measured. An interface between people and system that allows speed in the
8 measurement process and the correct use of the system is needed. Therefore, semantics and interfaces must be
9 understandable and objective, but without losing their essence and not generalizing data that might be crucial to
10 decision-making. Appropriate vocabulary and terminology must be used in all processes and throughout the whole
11 life cycle of an operation so that it can be consistently executed, as this improves communication and interaction
12 between the involved people.
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14 Some organizations face difficulties in dealing with intangible data, goals and results, what makes it a challenge
15 to find an appropriate semantics. It is the case of public sector organizations, third sector organizations, and social
16 enterprises. According to Jung (2011), these organizations, especially the public sector ones, present ambiguous
17 objectives. The complex terminology and intangible factors, as stated by Cordery & Sinclair (2013) and Moxham
18 (2009), makes it difficult for these organizations to design and use a PM system. For instance, the measurement
19 of social performance that affects these organizations is an intangible dimension to be managed and better
20 investigated. Additionally, these organizations have to deal with different stakeholders’ requirements, their
21 systems, and metrics, each of them having a different background and knowledge. So, the semantic attention is an
22 essential concern to be considered in the PM system design.
23

24 No phase of the studied PM system implementation and operationalization process presents an objective that
25 covers the semantic issue. There is a particular tendency to consider evaluations of physical and tangible resources,
26 which comprise a common language, as observed by Folan and Browne (2005). However, it is also important to
27 bear a critical view of the intangible elements, with a suitable treatment of those elements and the definition of
28 common terminology for referring to them.
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32 **6. Revised PMS implementation and operationalization process**

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37 This section presents a set of new objectives for the PM system process under study, based on the discussion of
38 the previous sections in which enterprise engineering guidelines are presented and missing guidelines are
39 identified, taking into account the considerations of the literature discussed in Section 5.
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41 To meet guideline #2, regarding the involvement of people in the PM system process design, the proposal is to
42 include a new part in Phase 1 with two new objectives, as shown in Table 4. This new part is to be Part 2, once the
43 first part, regarding the identification of the main customer groups is related to specific management information,
44 and the process can then follow with the previous Part 2 as Part 3 for the definition of organizational objectives
45 with the participation of all people involved already guaranteed. The other parts in Table 2 are shifted accordingly.
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49 [Table 4 here]
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54 For guideline #5, regarding interoperability, the inclusion of a new part and four new objectives is proposed, as
55 shown in Table 5. This is a new Part 4, providing support for the subsequent parts that might require an information
56 system in place to collect information, process it and provide it back in the form of the measures and other
57 necessary reports. The other parts in Table 2 are also shifted accordingly.
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5 Additionally, the incorporation of two more objectives in the new Part 4 is suggested, to cover guideline #11,
6 which refers to the semantics of the process, as can be seen in Table 6. This is important to be done in Part 4, with
7 the objectives related to interoperability, as proper semantics is important to guarantee a common understanding
8 of the terminology throughout the other parts.
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12 [Table 6 here]
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17 Regarding guideline #9, in relation to the process handling all possible exceptions, despite the existence of
18 objective 10.2 that sets a mechanism for the performance measurement system review, the proposal is that this
19 objective is withdrawn and a broader and more descriptive part is incorporated in Phase 2, according to Table 7.
20 This is a new Part 13, placed at the end of the process because its objectives complement the process by considering
21 also the evaluation of system effectiveness, technology advancement and results of organizational changes.
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25 [Table 7 here]
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31 To sum it all up, the whole redesigned PM system implementation and operationalization process is shown in
32 Table 8.
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41 **7. Conclusion** 42 43 44 45

46 To answer the questions raised at the introduction: “how can one guarantee that a PM system does not become
47 obsolete, so that capabilities are developed for keeping it updated in a complex and dynamic environment?” and
48 “could enterprise engineering principles contribute for a ‘complete’ approach for designing a PM system?”, this
49 paper revised Neely *et al.*'s (2002) PM system implementation and operationalization process according to
50 Deschamps *et al.*'s (2013) enterprise engineering guidelines. Through a literature review and the understanding of
51 the nature of the enterprise engineering guidelines, the paper took each guideline and determined to each objectives
52 of the 10 parts of the process proposed by Neely *et al.* (2002) they were related, building a correspondence
53 association that made it possible to see where the gaps in the process were. The set of 12 guidelines covers key
54 aspects for the diagnosis, design, and re-design of organizational systems, including PM systems. These guidelines
55 address critical issues such as the involvement of stakeholders, formalization and structure of the process, and
56 interoperability.

57 Four guidelines were not fully covered by the process, and the literature review allowed better comprehension of
58 each missing guideline so that their importance and relevance to the process was contextualized. For covering
59 these missing guidelines, the paper proposed the incorporation of new parts and objectives to the process. Thus,
60 the revised PM implementation and operationalization process is more complete.
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1 Finally, this paper is an advancement to the strategic performance management area, proposing a PM system
 2 implementation and operationalization process that incorporates enterprise engineering principles that are the
 3 result of a systematic identification study developed through a systematic literature review, a Delphi study and a
 4 set of case studies that apply the proposed guidelines as a diagnosis tool. It still demands exhaustive test for
 5 growing a better understanding of its application and use in the PM context. But besides that, the revised process
 6 might contribute to organizations that desire to develop their own PM model, adapted to their reality, aiming at
 7 dynamic and modern internal and external environments, considering its activities both quantitative and
 8 qualitatively, valuing people by including their experience and perspectives, and involving them with a greater
 9 commitment to the implementation of a process they took part in, once they understand its reasons and motivations.
 10 Future studies are suggested aiming to assess other management processes according to the enterprise engineering
 11 guidelines, to meet the requirements of a dynamic management system, adapted to the environment and to the
 12 group of people involved.

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Table 1: Enterprise Engineering guidelines

#	Enterprise Engineering Guidelines
1	Process design and execution must be aligned with organizational context (e.g. organizational goals, organizational values, organizational culture, organizational performance, technology and people)
2	People involved in a process must participate in its design
3	Processes must be clearly defined (e.g. objectives, roles, responsibilities, capabilities, performance, information and interfaces)
4	Capabilities of resources in a process must be aligned with expected process performance
5	Information structure must be based on open standards to ensure interoperability with different systems
6	Specifications for the interface channels within a process value chain must be defined
7	Process models and their elements (e.g. objectives, roles, responsibilities, capabilities, performance, information and interfaces) must be reusable throughout the organization and its value chain
8	Processes must explicitly support management/control (e.g. synchronization, decision-making, delegation and coordination) within a process and with other processes
9	Process design must address different types of exceptions
10	Process design and execution must incorporate mechanisms for change/improvement detection/management
11	Process semantics must be coherent and consistent throughout all processes
12	Information related to the performance of the process and the organization must be collected

Table 2: Phases, parts and objectives of the PM system implementation and operationalization process proposed by Neely *et al.* (2002)

Phase	Part	Objectives
Phase 1: Identification, design and implementation of performance measurement	Part 1: What are the main customer groups?	Objective 1.1: identify the customer-product groups with distinct and competing demands. Objective 1.2: identify the customer-product groups. Objective 1.3: collect the identified customer-product groups data.
	Part 2: What are the organizational objectives?	Objective 2.1: reach a balanced set of organizational objectives for each customer-product group. Objective 2.2: identify the customer needs for each customer-product group, starting with the most important group. Objective 2.3: identify the stakeholders needs for each customer-product group. Objective 2.4: identify organizational objectives. Objective 2.5: verify whether a balanced set of objectives has been developed. Objective 2.6: set targets and verify strategies Objective 2.7: evaluate contributions. Objective 2.8: define responsibilities to verify or develop performance measures for each organizational objective.
	Part 3: Have the organizational objectives been reached?	Objective 3.1: develop performance measures for each organizational objective and complete a register form with the performance measures for each organizational objective.
	Part 4: Were the right measures chosen?	Objective 4.1: verify whether everybody agrees with all the high-level performance measures. Objective 4.2: set a process to follow the progress with the implementation of each measure. Objective 4.3: verify whether there are barriers for implementation.
	Part 5: Using the measures to manage the business	Objective 5.1: set a schedule of future performance reviews. Objective 5.2: set a mechanism to review the performance measurement system. Objective 5.3: conduct performance reviews successfully.
Phase 2: Identification of suitable performance measures from the superior to the inferior levels in cascade	Part 6: What can be done to leverage performance in relation to the objectives?	Objective 6.1: identify performance conductors. Objective 6.2: fill in the "polar fishbone" graph. Objective 6.3: summarize the "polar fishbone" graph.
	Part 7: Which are the most important performance conductors?	Objective 7.1: identify which conductors are fundamental so that suitable performance measures can be developed. Objective 7.2: identify key-activities. Objective 7.3: evaluate key-activities (main). Objective 7.4: set responsibilities for the performance measurements for each key-activity.
	Part 8: How can one know whether these conductors are working?	Objective 8.1: identify one performance measure for each key-conductor. Objective 8.2: fill in a register form with each key-activity performance measure.
	Part 9: Were the right measures chosen for the conductors?	Objective 9.1: verify whether all the organizational team members agree with the measures they will use. Objective 9.2: set a follow-up process for each measure implementation progress. Objective 9.3: verify whether there are any barriers to implementation.
	Part 10: Use the measures to leverage organizational performance	Objective 10.1: set a schedule for future performance reviews. Objective 10.2: set a mechanism to review the performance measurement system. Objective 10.3: conduct performance reviews successfully.

Table 3: Evidences of the association between enterprise engineering guidelines and PM system operationalization and implementation process objectives

(a)

Guidelines	Phase	Part	Objectives
#1. Processes must be aligned with the organizational context (for example, organizational goals, organizational values, organizational culture, organizational performance, technology and people).	Phase 1	Part 2: What are the organizational objectives?	Objective 2.1: reach a balanced set of organizational objectives for each customer-product group. Objective 2.2: identify customer needs for each customer-product group, starting with the most important group. Objective 2.3: identify stakeholders needs for each customer-product group. Objective 2.4: identify organizational objectives. Objective 2.5: verify whether a balanced set of objectives has been developed. Objective 2.6: set targets and verify strategies. Objective 2.8: define responsibilities to verify or develop performance measurements for each organizational objective.
		Part 4: Were the right measures chosen?	Objective 4.3: verify whether there are barriers to the implementation.
	Phase 2	Part 9: Were the right measures chosen for this conductor?	Objective 9.1: verify whether all the organizational team members agree with the measures they will use. Objective 9.3: verify whether there are any barriers to implementation.

(b)

Guidelines	Phase	Part	Objectives
#3. Processes must be clearly defined (for example, objectives, roles, responsibilities, capabilities, performance, information and interfaces).	Phase 1	Part 2: What are the organizational objectives?	Objective 2.8: define responsibilities to verify or develop performance measures for each organizational objective.
		Part 3: Have the organizational objectives been reached?	Objective 3.1: develop performance measures for each organizational objective and fill in a register form with performance measures for each organizational objective.
	Phase 2	Part 7: Which are the most important performance conductors?	Objective 7.1: identify which conductors are fundamental so that suitable performance measures can be developed. Objective 7.4: set responsibilities for the performance measures for each key-activity.
		Part 9: Were the right measures chosen for this conductor?	Objective 9.1: verify whether all organizational team members agree with the measures they will use.

(c)

Guidelines	Phase	Part	Objectives
#4. Capabilities of resources in a process must be aligned with expected process performance.	Phase 2	Part 8: How can one know whether these conductors are working?	Objective 8.1: identify a performance measure for each key-conductor. Objective 8.2: fill in a register form for each key-activity performance measure.
		Part 10: Use the measures to leverage organizational performance	Objective 10.1: set a schedule for future performance reviews. Objective 10.2: set a mechanism for the performance measurement system review. Objective 10.3: conduct performance reviews successfully.

(d)

Guidelines	Phase	Part	Objectives
#6. Specifications for the interface channels within a process value chain must be defined.	Phase 1	Part 2: What are the organizational objectives?	Objective 2.2: identify customers' needs for each customer-product group, starting with the most important group. Objective 2.3: identify stakeholders needs for each customer-product group.
	Phase 2	Part 6: What can be done to leverage performance in relation to the objectives?	Objective 6.1: identify performance conductors. Objective 6.2: fill in the "polar fishbone" graph. Objective 6.3: summarize the "polar fishbone" graph.

(e)

Guidelines	Phase	Part	Objectives
#7. Process models and their elements (e.g. objectives, roles, responsibilities, capabilities, performance, information and interfaces) must be reusable throughout the organization and its value chain.	Phase 1	Part 4: Were the right measures chosen?	Objective 4.1: verify whether everybody agrees with all the high-level performance measures.

(f)

Guidelines	Phase	Part	Objectives
#8. Processes must explicitly support management/control (e.g. synchronization, decision-making, delegation and coordination) within a process and with other processes.	Phase 1	Part 4: Were the right measures chosen?	Objective 4.2: establish a process to follow the progress with the implementation of each measure.
	Phase 2	Part 7: Which are the most important performance conductors?	Objective 7.2: identify key-activities. Objective 7.3: evaluate key-activities (main).

(g)

Guidelines	Phase	Part	Objectives
#10. Process design and execution must incorporate mechanisms for change/improvement detection/management.	Phase 1	Part 2: What are the organizational objectives?	Objective 2.7: evaluate contributions.
		Part 5: Using the measures to manage the business	Objective 5.1: set a schedule for future performance reviews. Objective 5.2: set a mechanism for the performance measurement system review. Objective 5.3: conduct performance reviews successfully.
	Phase 2	Part 9: Were the right measures chosen for this conductor?	Objective 9.2: establish a process to follow the progress with the implementation of each measure.
		Part 10: Use the measures to leverage organizational performance	Objective 10.1: set a schedule for future performance reviews. Objective 10.2: set a mechanism for the performance measurement system review. Objective 10.3: conduct performance reviews successfully

(h)

Guidelines	Phase	Part	Objectives
#12. Information related to the performance of the process and the organization must be collected.	Phase 1	Part 2: What are the organizational objectives?	Objective 2.8: define responsibilities to verify or develop performance measures for each organizational objective.
		Part 3: Have the organizational objectives been reached?	Objective 3.1: develop performance measures for each organizational objective and fill in a register form of the performance measures for each organizational objective.
		Part 5: Using the measures to manage the business	Objective 5.1: set a schedule for future performance reviews. Objective 5.2: set a mechanism for the performance measurement system review. Objective 5.3: conduct performance reviews successfully.
	Phase 2	Part 6: What can be done to leverage performance in relation to the objectives?	Objective 6.1: identify performance conductors. Objective 6.2: fill the “polar fishbone” graph. Objective 6.3: summarize the “polar fishbone” graph.
		Part 10: Use these measures to leverage organizational performance	Objective 10.1: set a schedule for future performance reviews. Objective 10.2: set a mechanism for the performance measurement system review. Objective 10.3: conduct performance reviews successfully.

Table 4: New part and objectives in Phase 1 to cover Guideline 2

NEW PART	NEW OBJECTIVES
Part 2: How will employees participate in system conception, implementation and control?	Objective 2.1: Establish criteria to form the teams for conception and performance monitoring. Objective 2.2: Establish a set of actions so that all employees are involved in the process from its conception, through development until monitoring of performance measures.

Table 5: New parts and objectives in Phase 1 to cover Guideline 5

NEW PART	NEW OBJECTIVES
Part 4: The supporting PM information system must be designed considering the interoperability	Objective 4.1: Identify the patterns of communication/interaction required by stakeholders in their organizational systems that must relate with the PM system.
	Objective 4.2: Describe the organizational processes necessary information structure.
	Objective 4.3: Evaluate the required computational environment (platform, architecture, and others) so that the PM system may interoperate with other organizational systems.
	Objective 4.4: Establish a systematic periodic review to evaluate the effectiveness of data and information exchange.

Table 6: New parts and objectives in Phase 1 to cover Guideline 11

NEW PART	NEW OBJECTIVES
Part 4: The supporting PM information system must be designed considering the interoperability	Objective 4.5: Develop an interface so that the system can communicate with other systems. Objective 4.6: Identify the systems ontology.

Table 7: New parts and objectives in Phase 2 to cover Guideline 9

NEW PART	NEW OBJECTIVES
Part 13: Test the system developed for use/review	Objective 13.1: Carry out tests of the system to account for different use scenarios.
	Objective 13.2: Appoint people responsible for the developed system maintenance regarding error/fault prevention.
	Objective 13.3: Carry out improvement plans and include new functionalities according to the demands of users and problems reported by them.
	Objective 13.4: Evaluate possible changes and future improvements.

Table 8: Proposed PM system implementation and operationalization process

(a)

Phase	Part	Objectives
Phase 1: Identification, design and implementation of performance measurement	Part 1: What are the main customer groups?	Objective 1.1: identify the customer-product groups with distinct and competing demands. Objective 1.2: identify the customer-product groups. Objective 1.3: collect the identified customer-product groups data.
	Part 2: How will employees participate in system conception, implementation and control?	Objective 2.1: establish criteria to form the teams for conception and performance monitoring. Objective 2.2: establish a set of actions so that all employees are involved in the process from its conception, through development until monitoring of performance measures.
	Part 3: What are the organizational objectives?	Objective 3.1: reach a balanced set of organizational objectives for each customer-product group. Objective 3.2: identify the customer needs for each customer-product group, starting with the most important group. Objective 3.3: identify the stakeholders needs for each customer-product group. Objective 3.4: identify organizational objectives. Objective 3.5: verify whether a balanced set of objectives has been developed. Objective 3.6: set targets and verify strategies Objective 3.7: evaluate contributions. Objective 3.8: define responsibilities to verify or develop performance measures for each organizational objective.
	Part 4: The supporting PM information system must be designed considering the interoperability	Objective 4.1: identify the patterns of communication/interaction required by stakeholders in their organizational systems that must relate with the PM system. Objective 4.2: describe the organizational processes necessary information structure. Objective 4.3: evaluate the required computational environment (platform, architecture, and others) so that the PM system may interoperate with other organizational systems. Objective 4.4: establish a systematic periodic review to evaluate the effectiveness of data and information exchange. Objective 4.5: develop an interface so that the system can communicate with other systems. Objective 4.6: Identify the systems ontology.
	Part 5: Have the organizational objectives been reached?	Objective 5.1: develop performance measures for each organizational objective and complete a register form with the performance measures for each organizational objective.
	Part 6: Were the right measures chosen?	Objective 6.1: verify whether everybody agrees with all the high-level performance measures. Objective 6.2: set a process to follow the progress with the implementation of each measure. Objective 6.3: verify whether there are barriers for implementation.
	Part 7: Using the measures to manage the business	Objective 7.1: set a schedule of future performance reviews. Objective 7.2: set a mechanism to review the performance measurement system. Objective 7.3: conduct performance reviews successfully.

(b)

Phase	Part	Objectives
Phase 2: Identification of suitable performance measurement from the superior to the inferior levels in cascade	Part 8: What can be done to leverage performance in relation to the objectives?	Objective 8.1: identify performance conductors. Objective 8.2: fill in the “polar fishbone” graph. Objective 8.3: summarize the “polar fishbone” graph.
	Part 9: Which are the most important performance conductors?	Objective 9.1: identify which conductors are fundamental so that suitable performance measures can be developed. Objective 9.2: identify key-activities. Objective 9.3: evaluate key-activities (main). Objective 9.4: set responsibilities for the performance measurements for each key-activity.
	Part 10: How can one know whether these conductors are working?	Objective 10.1: identify one performance measure for each key-conductor. Objective 10.2: fill in a register form with each key-activity performance measure.
	Part 11: Were the right measures chosen for the conductors?	Objective 11.1: verify whether all the organizational team members agree with the measures they will use. Objective 11.2: set a follow-up process for each measure implementation progress. Objective 11.3: verify whether there are any barriers to implementation.
	Part 12: Use the measures to leverage organizational performance	Objective 12.1: set a schedule for future performance reviews. Objective 12.2: conduct performance reviews successfully.
	Part 13: Test the system developed for use/review	Objective 13.1: Carry out tests of the system to account for different use scenarios. Objective 13.2: Appoint people responsible for the developed system maintenance regarding error/fault prevention. Objective 13.3: Carry out improvement plans and include new functionalities according to the demands of users and problems reported by them. Objective 13.4: Evaluate possible changes and future improvements.

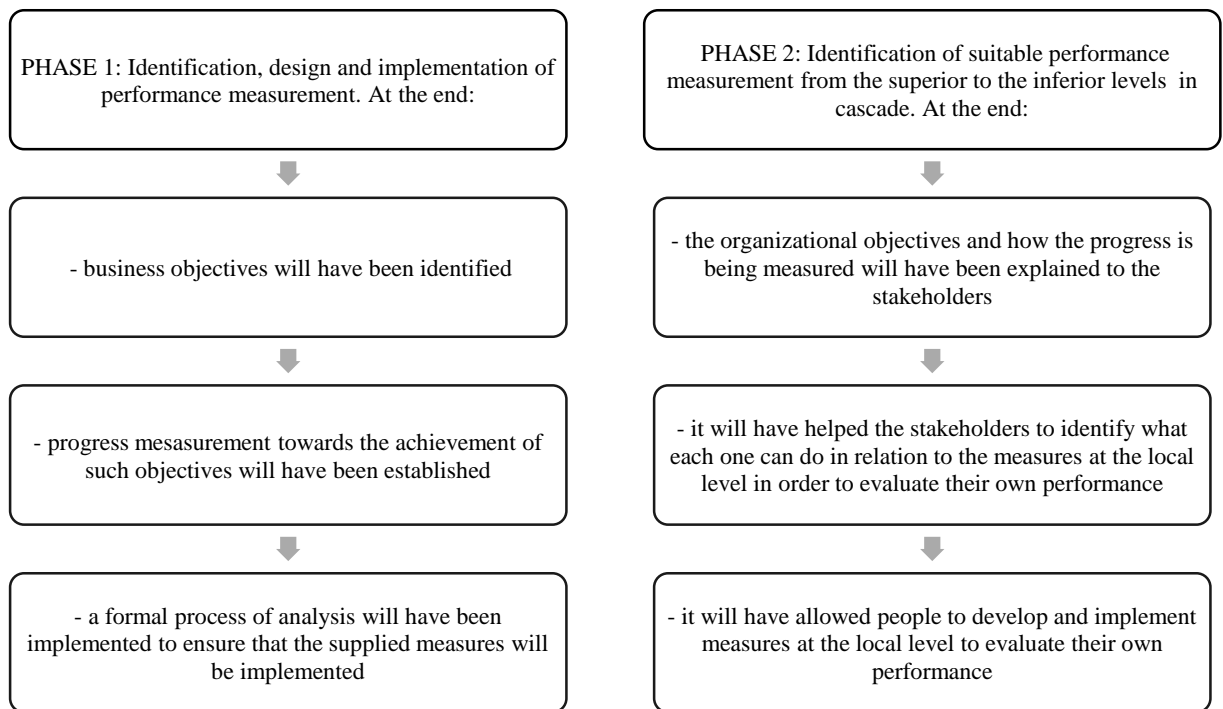


Figure 1: Phases of the PM system implementation and operationalization process proposed by Neely *et al.* (2002)

Figure 2

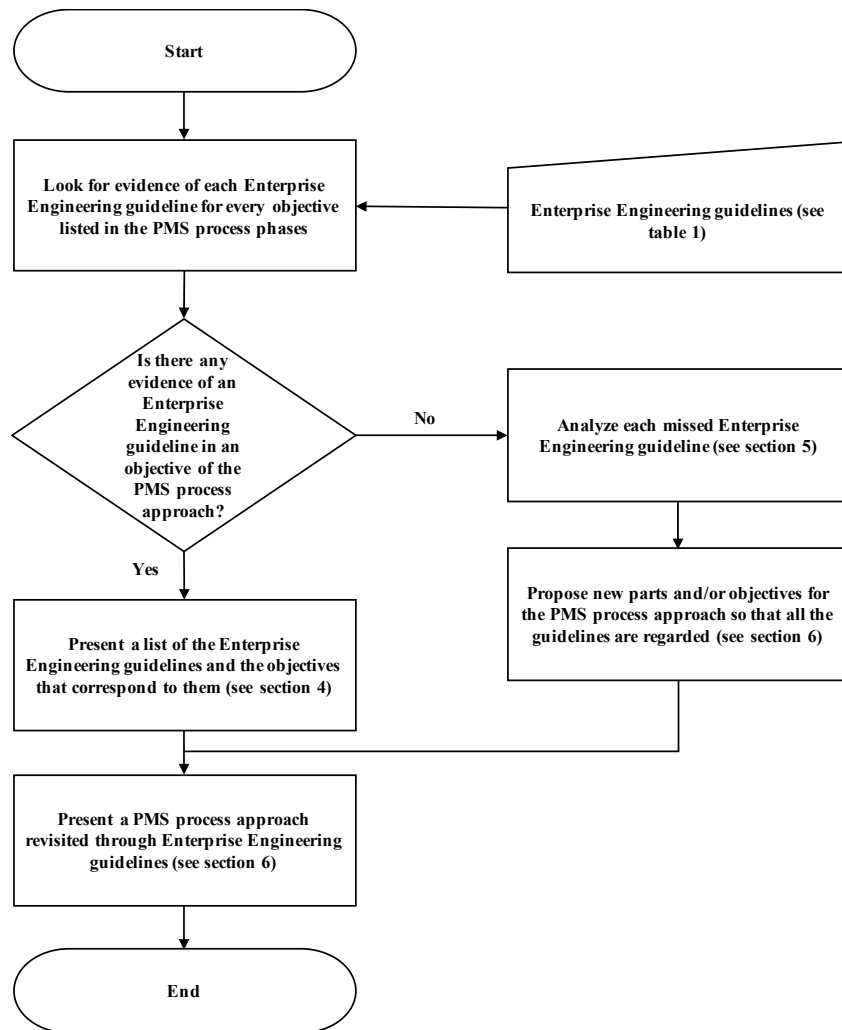


Figure 2: Procedure to assess the PM system implementation and operationalization process through enterprise engineering guidelines

APPENDIX B

Table B1 – Overview of the analysis of the studied NPO and public administration organized by factors and questions of the protocol of the case study

Factor: Social approach

1. How are the social value and impact evaluated?

US.NPO.1	The NPO indicates a broader understanding of measurement of social value creation and community impact but has no specific methodology for doing so. Still, the available documents suggest that there is a concern in describing the social aspects.
BR.NPO.1	They have performance indicators and its use is seen as a source of social information.
BR.NPO.2	There is not a performance indicator which indicate social value.
US.PA.1	The public organization does not present a method to assess the social value creation and to analyze the social impact in short or long-term. It is an intangible knowledge for them. As a public organization, the social value is seen as an inherent gain.
CA.PA.1	The organization does not have a method to evaluate the social impact of long-term. This concept is subjectively known base on fire department and firefighters' experience.
BR.PA.1	They have the social value as a goal of their mission, but they don't have performance indicators for that. Only quantitative measures are performed.
Conclusion	Two NPOs demonstrate the concern to evaluate the social value and social impact, but only one presented performance indicators for that. But still, the indicators are not pretty well to evaluate that properly. The social value neither the social impact is measured in these public administrations. However, they have a concern to reach them and assess those aspects based on their perception.

2. Are the community interests analyzed and transformed into performance indicators? How?

US.NPO.1	The community interests are present in the organizational planning through their sponsors' businesses and public and governmental support. The essence of the business and the work structure proposed by this NPO provides an interesting way to integrate public and private interest. Their reports show indicators of their performance.
BR.NPO.1	There is no indicator to evaluate the performance in a community interests' perspective, but there is a concern to know the demands related to the scope of the project. Those demands are known through the activities made with the community.
BR.NPO.2	The community interests are not transformed into performance indicators. However, reports are made to communicate to the community the organizational performance.

US.PA.1	There is not a way to transform the community interests into performance indicators. As a public administration, there is a perception that their job is a community interest by itself and any routine procedure is considered a community interest.
CA.PA.1	As a public department, the community interests are well-defined. Because of this, there is not a method to collect new community interests, but there is a concern in analyzing and to know the community evolution in terms of the number of population and to know where they came from and their culture to know how it can influence their quality of life, for example. There are no performance indicators for that, but it is also subjectively known.
BR.PA.1	There is not a method to assess the performance in a community interests' perspective. The activities are made when there is a demand usually for prevention or as a response to natural disaster. The performance evaluation is based on the response capacity to that demand.
Conclusion	One NPO demonstrates the practice of providing performance indicators based on community interests. The others two do not have this practice but recognize the importance to gather their demands and offer external reports to communicate their activities to the community. The three public administrations do not indicate a method to gather the community interests and evaluate their actions through this perspective because they understand that the community interest is intrinsic to their mission. So, indirectly, the performance indicators, in general, represent the community interests.

3. How do you assess if the mission is being accomplished?

US.NPO.1	They consider intangible analysis to see if the mission is being accomplished. The feature of sponsors and the received amount from grants or funding are viewed as a way to assess the reach of the mission over time and the perception of its stakeholders.
BR.NPO.1	The performance indicators are useful to assess the mission accomplishment.
BR.NPO.2	The analysis of quality of their projects is a way to assess the mission.
US.PA.1	A quantitative analysis is considered to assess if the mission is being accomplished.
CA.PA.1	The department considers the performance indicators related to the response time as a good way to know if the mission is being accomplished very well or not. The response time is considered as a crucial issue for the mission to save lives.
BR.PA.1	They consider the mission accomplishment if they are being a reference.
Conclusion	Two NPOs indicate that the quality of their projects and the gains in long-term can demonstrate how well the mission is being accomplished. The performance indicators are relevant outputs to assess if the mission is being achieved or not. Also, two public administrations indicate the use of performance indicators to assess their mission while another one considers subjectively through its credibility comparing with other ones.

Factor: Accountability

4. Are the data on performance measurement communicated externally? How?

US.NPO.1	Some performance indicators are applied for internal management and to provide some reports for sponsors. Besides that, publications are considered as a way to provide information about their initiatives too.
BR.NPO.1	There are external reports to strategic stakeholders. Some generic performance data are available on the website.
BR.NPO.2	The external report is done for the clients and associates.
US.PA.1	Some specific kind of data is reported to an external stakeholder and then, this stakeholder uses this information to provide grants for the department.
CA.PA.1	The organization produces obligatory reports for the city. Also, some reports are submitted to the public through summary or report on the website.
BR.PA.1	The official report and with more performance data is available on the state government website. Some generic performance data are available on the website.
Conclusion	The three NPOs communicate their performance measurement for external stakeholders in different perspectives of data. For some strategic stakeholders or those who the accountability is mandatory, more data about the performance are communicated. For other stakeholders, as the community, some general data are provided on the website or through fliers. The same situation is applied to public administrations. Moreover, one of them indicates that its reports contribute to attracting more grants.

5. Is the information generated in the system/spreadsheets used for accountability to stakeholders? How?

US.NPO.1	The organization does not have an obligation to provide a lot of data for the external stakeholder. Usually, they offer performance indicators to internal management and to their sponsors.
BR.NPO.1	Although the PMS be a simple system, some reports are made with data about projects, assistances, and financial summary.
BR.NPO.2	The information generated in the system/spreadsheets is used for accountability to stakeholders.
US.PA.1	The spreadsheets are usually used for internal management and the external communication to performance data is provided in an outer system which the department has access.
CA.PA.1	The information generated in the system is pretty well used to the accountability process.
BR.PA.1	The information generated in the system/spreadsheets is used for accountability to stakeholders.
Conclusion	The performance data are used in the accountability process both in NPO as in public administration.

Factor: Legitimacy

6. Does the data generated and reported through the system contribute to the legitimacy of the organization? Does the use of the system have this purpose?

US.NPO.1	Although there is no intention to use the performance metrics to increase the legitimacy, the results of the organization and their credibility to strategic stakeholders provide legitimacy.
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BR.NPO.1	They do not use the PMS to improve the legitimacy but recognize that influence.
BR.NPO.2	They do not use the PMS to improve the legitimacy but recognize that could influence if used for this purpose.
US.PA.1	The department does not have the intention to increase the legitimacy through the use of performance measures.
CA.PA.1	The performance indicators are not so effective to increase the legitimacy by the citizens because that is more subjective and based on their perception. However, to the government, i.e., for that one who decides the amount of money that will be invested, the performance indicators can support the making-decision and legitimization process.
BR.PA.1	They do not use the PMS to improve the legitimacy but recognize that influence.
Conclusion	The NPOs neither the public administrations use the PMS to increase the legitimacy but recognize that it can help. Also, one public administration indicates that the performance indicators support the legitimization to get more investments.

Factor: Volunteering

7. Is there access/metric/evaluation developed for volunteers? Which are they?

US.NPO.1	They do not have any kind of volunteering.
BR.NPO.1	There is not any kind of performance measurement to the volunteers, but the whole activity developed by the team has.
BR.NPO.2	They do not have any kind of volunteering.
US.PA.1	They do not have any kind of volunteering.
CA.PA.1	The department has volunteers working with some particular activities. They do not have the same training as the employees, and there is not any kind of performance indicator to them.
BR.PA.1	There is not any kind of performance measurement to the volunteers, but the whole activity developed by the team has.
Conclusion	The volunteering is present in one NPO and in two public administrations. However, there is no any kind of performance measurement for them. The NPO indicates that legally they can't measure their performance, so the evaluation is related to the project itself.

Factor: Involvement and influence of stakeholders

8. How can the performance measurement be influenced by the difference of interests and metrics for different stakeholders?

US.NPO.1	The lack of information can be a barrier to the communication with some stakeholders and to the legitimacy. So, in this way, some stakeholder can influence indirectly the organization to increase their way to disseminate reports or some data.
BR.NPO.1	The reports are done with general data that include all stakeholders' requirements, but if some of them require another measure or data, they will adopt it.

BR.NPO.2	Some stakeholders, especially those related to strategic planning, may influence the performance measurement usually requiring some specific performance indicators.
US.PA.1	The stakeholder that provide grants influences the performance measurement, in the reports and can affect the rhythm of the activities, e.g., in the traffic enforcement.
CA.PA.1	The stakeholders do not have a significant influence in the performance measurement definition. Usually, the metrics and statics are enough to them.
BR.PA.1	If some mandatory requirement for performance report is requested for any legal or government stakeholder, the organization will change the performance measurement. Usually, this situation happens with a request from the public sector and regulatory agencies.
Conclusion	The stakeholders may influence the performance measurement, and in practice, mandatory requirements for some specific data are reported by public administrations. For the NPOs, the requirements for performance indicators are not legal obligations, but they are frequently provided when request.

9. Has the system any adaptation in its design to meet some stakeholder requirement?

US.NPO.1	The system adaptations are seen as small because they were considered for internal stakeholders or those who participate in stakeholder meetings.
BR.NPO.1	The performance measurement was adapted to provide specific performance measures from stakeholders' requirement and always that it is necessary, they do.
BR.NPO.2	The performance measurement is reviewed every year to assess the measures and indicators. Also, some strategic stakeholders participate in the process of the system planning and review.
US.PA.1	The department added to its administrative routine the state's order to provide reports to DMV. Also, the data of traffic are used to crime analysis and planning of hot spots and risks areas definition.
CA.PA.1	The state government influenced the performance measures definition. When it is necessary to review the indicators the department can invite strategic stakeholders to participate in this process, but it is not very often.
BR.PA.1	The software that measures the performance is not adaptable, but was designed for this kind of service. However, how to report the performance measures is influenced by strategic stakeholders' requirements.
Conclusion	The NPOs adapted their systems to attend stakeholders' requirements, and one of them review the performance indicators periodically. Some strategic stakeholders influence the performance measurement in public administrations and require specific data to be reported in specific software or intranet. So, they need adapt their performance indicators or reports to fit in stakeholders' systems.

Factor: Financial sustainability

10. Does the performance measurement system manage the different sources of income?

US.NPO.1	The institute receive income from different sources for different purposes.
BR.NPO.1	The system does not provide data concerning a specific source of income. The management of sources is done with the full amount of the resource.

BR.NPO.2	They receive money from different sources and the management is done through the strategic planning. In this way, individualized reports can be provided.
US.PA.1	The department has two types of income but the PMS does not need to provide a special tool for that because the sources are for different purposes.
CA.PA.1	The department receives the most significant amount of money from the city. Usually, the others sources of income have specific goals.
BR.PA.1	The system does not provide data concerning a specific source of income. The management of sources is done with the full amount of the resource. However, sometimes they receive a source for specific demands.
Conclusion	All organizations receive money from more than one source and the management of sources is done with the full amount of the resource. Only one NPO has a tool to manage the sources and provide individualized reports.

Short and long-term planning

11. How does the system consider goals and outcomes for the short and long-term?

US.NPO.1	The institute works by projects so, the planning is considered in a medium and long-term. Also, the outcomes, results and impact will be perceived in the long-term usually.
BR.NPO.1	The system considers goals and outcomes for the short and long-term by project planning.
BR.NPO.2	The management include a strategic planning done for 3 years and reviewed every year.
US.PA.1	Usually, the short-term planning is characterized by the routine activities, day by day. Other plans are mainly dependent on holidays and special events. The internal spreadsheets are done monthly, and the reports for DMV is annual.
CA.PA.1	The department plans for long-term which is considered around 5 years. However, there is not a long-term evaluation in terms of social impact. The political and budget issues can change the planning.
BR.PA.1	The short-term is characterized by actions by demand. The long-term is not possible to do because the organization depends on the political issues and their human resources can be changed every 4 years.
Conclusion	The three NPOs works with projects and can work in long-term planning. Also, two of them recognize that the impact of their results will be perceptible in the long-term. The three public administrations reported difficulty in planning for a long-term by political issues. The short-term is characterized by activities by demand.

12. Was there any system/spreadsheets/procedures adaptation to meet a short or long-term request by a stakeholder?

US.NPO.1	The procedure to analyze in short and long-term planning can be affect by publication terms and project requirements.
BR.NPO.1	Their work is based on projects so, the short and long-term is planned earlier.
BR.NPO.2	There were changes in the system for external stakeholder requirements.
US.PA.1	The DMV request the reports periodically. The internal department can request data for analysis purpose as for hot spots or criminal areas, for example.
CA.PA.1	The main issues related to short and long-term are associated with the financial planning.

BR.PA.1	The short and long-term can be influenced by changes in internal or government priorities or political issues.
Conclusion	In all the cases, adaptations to attend stakeholders' requirement in short or long-term is necessary. These adjustments can occur by demand, strategic changes or by legal aspect.

Factor: Fairness

13. Does the organization meet some inter-local equity requirements? If yes, how is this procedure?

US.NPO.1	The higher concern with equity is internal, e.g., students or researchers' metrics. Externally, there is more flexibility. There is no a methodological approach to assess this in a performance meaning.
BR.NPO.1	They do not have inter-local equity issues by a legal or mandatory requirement, but there is a concern to include both man and woman in the projects. Some projects are focused for woman in an attempt to include women in the labor market of industry.
BR.NPO.2	The concept of fairness is not present in this organizational context.
US.PA.1	The equity goal is present but will be dependent on demand. So, when there is more need for the traffic issue, e.g., traffic safety, the department adapt their planning of action. There is not a methodological approach to assess this in a performance meaning.
CA.PA.1	The department does not have a legal obligation to guarantee the inter-local equity among their services, but the conscious for fairness is voluntary, and they have this concern about their activities. There is no any performance indicator for fairness.
BR.PA.1	The fairness is perceptive in the planning of activities. They plan their actions based on demand, so who needs more, will get more help.
Conclusion	The NPOs do not have a concern with fairness by a legal obligation, but in two of them, there is an interest to act in this sense. The same situation can be noted in the public administrations. However, none organization measures the performance in this way.

Factor: Efficiency and effectiveness

14. How is the efficiency measured?

US.NPO.1	The institute measures the operational efficiency, and this is managed by department or team. The institute does some reviews about growth trend that helps to investigate the market and how they are spending their resources and so, assess the efficiency in the use of resources.
BR.NPO.1	The efficiency is evaluated through the achievement of goals, and each employee works with the financial efficiency as a target for each project.
BR.NPO.2	The efficiency is measured by financial indicators and strategic planning review.
US.PA.1	The department has a method to analyze the operational efficiency through numbers. The department does not have a methodology to measure the efficiency in the use of resources, but they use statistical analysis about their activities every time they need getting more grant by external stakeholder.

CA.PA.1	They have efficiency indicators and use that for management and benchmarking process.
BR.PA.1	The efficiency is evaluated through the achievement of goals. The use of resources is dependent on demand usually an emergency. They work with planning and a budget with strategic suppliers to provide materials, food, and water with low price and on demand in a short-term.
Conclusion	In general, the efficiency is measured by all organizations and it is related to the achievement of goals. In one of the NPOs, each employee reaches their own efficiency in the project. In another one, they use the efficiency measure to analyze their efficiency comparing to the grown of the market. The public administrations have more concern to efficient use of resources, and so, the planning and strategic making-decision support their goals to be efficient.

15. Are the criteria to measure the results well-established in the performance measurement system?

US.NPO.1	The criteria are well-established and there is a software to work with that, which also provide a way to feedbacks.
BR.NPO.1	They work with performance indicators, individual performance evaluation and in a subjective process.
BR.NPO.2	They only focus on financial indicators and, sometimes, the interpretation of efficiency and effectiveness is subjectively.
US.PA.1	The criteria to measure the results is very simple and just consider the numbers of traffic crashes. For other kinds of demands, e.g., crimes, in-depth analysis is done. So, the most relevant criteria are the one required by a stakeholder, like the DMV.
CA.PA.1	The department has some performance indicators related to the quantitative aspects. In a social approach, the analysis is based on their perception.
BR.PA.1	They work with a program planning and conduct weekly meetings to evaluate the performance.
Conclusion	The criteria to measure the results are well-established. For one of the NPOs, the software contributes to providing feedback. In another one, the measures are performed to projects' indicators and individual performance. But in the third one, only financial indicators are considered as relevant indicators to support the management. For the public administrations, the focus of the measurement is in the statistical aspects while the social aspects evaluation is based on their perception.

16. How do you evaluate the effectiveness?

US.NPO.1	An intangible perception is considered.
BR.NPO.1	They do not evaluate the effectiveness.
BR.NPO.2	They do not evaluate the effectiveness.
US.PA.1	The department analyzes the effectiveness through the number of traffic crash once the goal is to decrease those accidents and some efforts are being made for that.
CA.PA.1	The performance measurement system does not have an effectiveness index. The effectiveness is based on their perceptions because involve a lot of intangible variables.
BR.PA.1	They do not evaluate the effectiveness.

Conclusion	Three organizations do not evaluate their effectiveness while two of them assess the effectiveness based on their perception. Only one public administration presents the measurement of effectiveness.
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17. Does the performance measurement consider intangible results? If yes, how is this procedure?

US.NPO.1	There is no a method to assess the intangible results but they recognize that in some way, that is considered for individual or team evaluation.
BR.NPO.1	There is no a method to consider intangible results. They try translating in a measurable way, but it is still subjective.
BR.NPO.2	There is no a method to consider intangible results. Also, the intangibility could be seen with skepticism.
US.PA.1	There is no a method to assess the intangible results.
CA.PA.1	There is no a method to assess the intangible results.
BR.PA.1	There is no a method to assess the intangible results.
Conclusion	None organization has a method to assess the intangible results.

18. How to indicate a positive result although the financial result does not show it?

US.NPO.1	There is no a method to indicate a positive result although the financial result does not show it.
BR.NPO.1	There is no an indicator or criteria to demonstrate it, but there is a concern to provide the projects although the financial restriction.
BR.NPO.2	They only focus on financial indicators but, sometimes, the interpretation of efficiency and effectiveness is subjectively.
US.PA.1	There is not a method to indicate a positive result although the financial result does not show it. Also, there is not a concern about the use of resources efficiently. The most important goal is to do what you have to do.
CA.PA.1	There is no a method to indicate a positive result although the financial result does not show it. However, they understand that can have a perception of this through the good performance of the department.
BR.PA.1	There is no an indicator or criteria to demonstrate it, and the political issues or the restrictions in the budget can be very harmful to them. Although that, the donation of material and food and the volunteering are frequently.
Conclusion	None organization has a method to indicate a positive result although the financial result does not show it they recognize that this perception can be subjective.

19. What are the difficulties to measure performance and work with these data?

US.NPO.1	The difficulty is related to personal perception because there is a concern that the performance measurement does not be a competition between the individuals or teams.
BR.NPO.1	The main difficulty is the definition of metrics to intangible results and for long-term.
BR.NPO.2	The difficulties are related to the awareness in the team to use the system as a tool to support the management. Also, they concentrate the analysis on financial

	indicators only. Finally, the system is not available to all levels of the organization. In this way, may detract from the interest in using the system.
US.PA.1	First of all, the data are not available. Also, there is not an officer to work with that exclusively. There is not a management effort to do that, so there is not a focus on performance measurement to performance management.
CA.PA.1	The intangibility of the social aspects of social value creation and social impact is the most significant difficulty to measure the performance.
BR.PA.1	The use of the system is not mandatory, and because of this, its use is not a routine. In another side, there is not a conscious yet about the relevance of the use of the system to support the making decision and management the resources, results, planning, and control.
Conclusion	Many kinds of difficulties to measure performance were cited by the organizations related to internal resistance or interest to use the system properly, intangibility of the main results because of the social aspects, and availability for all levels of the organization.

20. Does the performance measurement system allow for monitoring and generating of performance reports?

US.NPO.1	Their performance measurement system allows for monitoring and generation of performance reports.
BR.NPO.1	The system allows the monitoring and generation of performance reports through the performance indicators.
BR.NPO.2	The system allows the monitoring and generation of performance reports but is not done.
US.PA.1	The performance measurement system allows for monitoring and generating of performance reports. But the reduced number of officers decreases interest in the effort to measure performance and report production.
CA.PA.1	The performance indicators measure through the system contribute to the performance reports.
BR.PA.1	The reports are made through the joining of several documents and are usually carried out in specific systems of their stakeholders.
Conclusion	All organizations have a performance measurement system that allows or support the monitoring and generation of performance reports.

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21. Is the performance measurement system available for use at all levels of the organization?

US.NPO.1	The performance measurement system is not available for use at all levels of the institute.
BR.NPO.1	The performance measurement is available with some access restrictions to all employees.
BR.NPO.2	The performance measurement is not available for everybody in the organization, and there is not an intention to promote learning through it.
US.PA.1	The performance measures are different if we consider the teams and because of this is not available for everybody. So, for the traffic unit, some people will have access to internal reports, and also, a team of the system that monitoring hot spots and crime areas has access too.

CA.PA.1	The performance measurement system is available for all firefighters but it is not systematically used for them.
BR.PA.1	The use of the system is available for all levels, but it is not used for all of them.
Conclusion	For three organizations the system is available for all levels of organizations, but it is not properly used. Only two NPOs use the system in a systematically way but the access for all levels are restricted or not available.

22. Is the system developed to support learning and continuous improvement in the organization?

US.NPO.1	The use of performance measurement supports the learning and continuous improvement individually but not for everybody in the organization. Only those involved in each area of action being researchers or the like who have annual evaluations.
BR.NPO.1	The used spreadsheets to evaluate both the project performance as individuals' performance support the learning and continuous improvement for all employees.
BR.NPO.2	There is not an intention to promote learning neither continuous improvement through it.
US.PA.1	The use of the spreadsheets provides learning and continuous improvement for the users but not to their subordinates or to the unit as a whole.
CA.PA.1	The performance indicators and statics support the learning especially in the training process, but it is not systematically applied for learning and continuous improvement. It is more related to the management, planning and benchmarking.
BR.PA.1	The use of the system is available for all levels, but although it is not used for all of them, some management activities contribute to the involvement and learning for everybody.
Conclusion	In one NPO, the performance measurement supports the learning and continuous improvement for all employees and for other two contributes for those are involved in the use of the system.