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Evaluating the Effectiveness of Public Procurement Performance Management Systems in Local Governments

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ABSTRACT

Increasing the effectiveness, efficiency, and compliance of public procurement (PP) has become an ongoing concern for governments. Public administrations at different levels are realising that – in order for PP to fulfil its mission – appropriate control and diagnostic systems must be put in place. This study aims to investigate the architecture of PP performance measurement systems (PP-PMSs) in local governments, drawing on four case studies from Italy and four from Wales. The theoretical background is provided by the emerging literature on procurement PMSs in the private context as well as the specific literature on the public sector. PP-PMSs are specifically analysed with respect to performance areas covered (i.e., cost, quality, time, compliance, innovation, sustainability). Results show that performance dimensions should be extended beyond traditional cost measures, with KPIs not limited to those imposed by national/regional regulation. Furthermore, we show that this is likely to happen where the procurement function is recognised as strategic in the public institution.

KEYWORDS Local government; public procurement; performance; regulation

1. Introduction

Performance management has become a key element in modern public sector governance, as many developed and developing countries have the need to measure organisational and individual efficiency in order to ensure that public sector organisations fulfil their mission (Rhodes et al. 2012).

Furthermore, performance management is critical for a government function – public procurement (PP) – that has increasingly grown complex, controlling a relevant share of public expenditures (up to 70%; e.g., in Greece) and national gross domestic product (GDP) (up to 25%; e.g., in the Netherlands; OECD 2013), and continuing to evolve both conceptually and organisationally

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(Thai 2008). Nowadays, the possibility for public administrations to fulfil their mission greatly depends upon the rationalisation of such a relevant share of expenditures, and the potential contribution to the organisational performance provided by the procurement function greatly depends upon the way such function is managed and controlled, making PP performance management systems (PP-PMSs) particularly relevant.

Polymakers, academics, and practitioners alike recognise that PP has evolved from a clerical signoff-ridden set of activities to a strategic function that enhances efficiency in public organisations, regulates markets, and promotes sustainable development (Thai 2008). In particular, the PP system aims at delivering efficiency and 'value for money' in the use of public funds, whilst adhering to European Union (EU) requirements and to national laws and policies (Erridge and McIlroy 2002). Performance management is about seeking to answer the fundamental question of whether the procurement system is ultimately delivering according to its objectives and, in case of performance gaps, which kind of corrective actions should be put in place.

Unfortunately, policy debates often focus on how to include new objectives rather than assessing the feasibility and compatibility of existing ones (Kwon and Jang 2011). Furthermore, measuring the effectiveness of procurement choices for each single objective is still an issue. Overall, PP-PMSs should constitute a reliable diagnostic tool assessing the functioning of PP at different governmental levels and showing a potential course of improvement (Verbeeten 2008).

With these premises, the paper has two main objectives. After a brief overview of past academic contributions, we propose a theoretical framework for PP-PMSs, clarifying performance areas and measures to be included, their level of analysis, and the link with general PP goals. Then, in the second part, we explore the implementation of the proposed model by using cross-case analysis in local governments from Wales and Italy, in order to assure theoretical replication and include situations with different maturity levels. Finally, we conclude drawing some suggestions for practitioners, and proposing an agenda for future research.

2. Literature review

We review the literature about PMSs in the public sector, in order to collect general insights for the purpose of this study. Next, we focus on extant literature about PP-PMSs to summarise state of the art and open challenges.

2.1 *Theoretical background: performance management in public institutions*

Performance measurement, as the process of quantifying the efficiency and effectiveness of actions (Neely 2005), has attracted increasing interest since

the late 1980s (Saiz et al. 2007). While performance management is relevant for both the private and public sector and several common issues can be found, scholars have emphasised some notable differences in the behaviour of public and private sector organisations (e.g., Wall and Martin 2003).

Historically, public sector organisations have heavily relied on action controls, that is, rules and procedures (Boland and Fowler 2000; Radnor and McGuire 2004). In the last decades, the discipline of New Public Management (NPM) has depicted the features of public sector reforms, promoting a change in management control of public sector organisations and shifting towards output controls (Lapsley 1999; Higgins 2005; Turley, Robbins, and McNena 2015). Many Western countries have promoted initiatives to stimulate the use of performance management practices in public sector organisations (including central government, local governments, and other public sector organisations, e.g., Angiola and Bianchi 2015; Charbonneau and Van Ryzin 2015). However, when NPM reforms translate into practices, usually a gap arises between intended actions and actual results, and it becomes necessary to understand which factors influence the effective implementation of PMSs (Poister and Streib 1999). Grounding on path dependency theory (e.g., Mahoney 2000), the public sector management literature highlights that organisations that continuously and voluntarily search for improvement are more likely to apply mature models and methodologies in an effective manner (McAdam and Walker 2003), creating a path towards a constant improvement of management techniques (including PMSs). Verbeeten (2008) supports this view, describing PMSs as a way to direct the organisational path of public bodies towards performance improvement, helping employees to understand what the organisation wants, and politicians and public managers to make the taxpayers aware of how their money is used.

2.2 Performance management for PP

When designing an integrated PMS for public institutions, all potential areas contributing to value creation for citizens should be included (e.g., Boyne 2006). PP being a pivotal function for public institutions (Murray 2001), PP-PMSs should be designed for reporting and improving procurement in government departments, thus fostering the achievement of the overall public objectives.

In the private context, scholars have long been directing their attention to the need to measure procurement efficiency and effectiveness (Gushée and Boffey 1928; Colton 1962). With the increasing importance of procurement departments within firms, scholars have developed more sophisticated models, mostly focusing on the type of measures to be adopted, such as efficiency/cost, total cost of ownership, on-time deliveries, accuracy, quality,

innovation, sustainability, internal customer satisfaction, and professionalism (Chao, Scheuing, and Ruch 1993; Beamon 1999; Gunasekaran, Patel, and Tirtiroglu 2001; Easton, Murphy, and Pearson 2002; Axelsson, Laage-Hellman, and Nilsson 2002; Lardenoije, van Raaij, and van Weele 2005; Caniato, Luzzini, and Ronchi 2014). However, recent studies acknowledge that the design and implementation of procurement PMSs has been under-investigated and that we should know more about how these systems work (Caniato, Luzzini, and Ronchi 2014; Luzzini, Caniato, and Spina 2014). The lack of insights is even more evident in the context of PP.

Indeed, contributions on PP-PMSs can be grouped at three levels. Only few studies propose a broader approach on PP-PMSs design. Knudsen (1999) identifies the key elements that should be investigated in the system, such as productivity of resources, process material and information flows, and satisfaction of final users. Kumar, Ozdamar, and Peng (2005) developed a PMS for healthcare procurement including measures for activities in the procurement department, quality of suppliers, internal customers satisfaction, and composition of the supply base. Finally, OECD – Sigma (2011) suggested three different (but interdependent) levels of performance should be included: (i) performance of the national PP system, (ii) performance of the contracting authorities' operations, and (iii) performance of an individual contract. As efficiency seeking has been recognised as the most important objective for PP so far (e.g., McAfee and McMillan 1989), a second group of works focus the attention on specific measures to evaluate procurement performance in this area, especially in terms of budget savings (e.g., Bennedsen and Schultz 2011; Costantino et al. 2012; Bergman and Lundberg 2013) and process and organisational efficiency (e.g., Croom and Brandon-Jones 2007; Coulson 2008; Raisbeck, Duffield, and Xu 2010; Karjalainen 2011; Doherty, McConnell, and Ellis-Chadwick 2013). Finally, some studies broaden the scope of PP-PMSs, by supporting the need to measure PP functioning also in other areas beyond cost and efficiency, such as quality of purchases (e.g., Nisar 2007; Yuan et al. 2009), process execution (e.g., Rendon 2008), sustainability (e.g., Preuss 2009; Walker and Brammer 2012; Amann et al. 2014), and innovation (e.g., Aschhoff and Sofka 2009).

3. Research objectives

From the literature review, we can first infer that PP-PMSs are a fundamental tool to ensure the efficient and effective management of PP processes, PP performance is a crucial driver of the capability of public organisations to fulfil their objectives, and general literature about procurement PMSs partially adapts to the case of PP. From this evidence, we worked in two directions. On the one hand, we designed a research framework clarifying the main performance areas that should be considered as far as PP is

concerned, and connecting such areas to PP processes and – ultimately – to the overall objectives of public organisations. On the other hand, we developed three research questions aimed at exploring how PP-PMSs are managed in order to support the role of the PP function.

3.1 Research framework

In designing the general structure of the PP-PMS, we grounded on extant literature to identify three key components. First, since the aim of measuring is to assess whether operations function in accordance with the objectives (Hayes and Wheelwright 1984), we started considering the typical PP goals, regulatory (i.e., compliance with the European Union PP Directives), commercial (i.e., use of market mechanisms to reduce cost and increase quality), and socio-economic (i.e., support to the wider government policy) (Erridge 2005).

Second, considering contributions specifically focused on the design of the private procurement PMS (e.g., Caniato, Luzzini, and Ronchi 2014) we isolated some characteristics that are relevant to PP as well, namely, the main performance areas, as well as their level of analysis. In line with these contributions as well as the suggestions of international non-governmental organisations (including OECD 2013; NIGP 2012), we were able to identify six relevant performance areas for PP that should be measured at both the internal processes and supply contract level, in order to assess the achievements of PP specific goals (Figure 1 and Table 1). This research framework might be applied to a single public organisation, to a specific part of the public sector (e.g., the procurement system in the health sector), a region, and/or even the whole national procurement system.

3.2 Research questions

The framework has been designed to answer three main research questions.

A frequent critique to traditional PMSs is that they are too financially oriented (Lardenoije, van Raaij, and van Weele 2005). This limitation is particularly relevant when dealing with PP activities: traditionally seen as

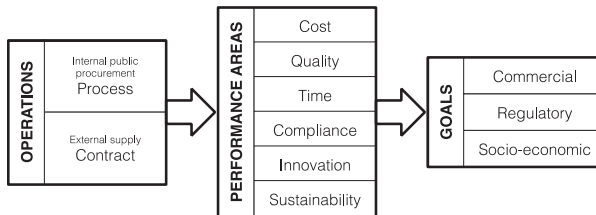


Figure 1. Research framework for PP-PMSs.

Table 1. Description of PP performance areas.

	References	Example of measures
Cost	Afonso, Schuknecht, and Tanzi (2005, 2010); Quirk (2005)	<ul style="list-style-type: none"> ● Realised vs. identified savings ratio ● Savings due to new contract/supplier arrangements or procurement initiatives
Quality	Kumar, Ozdamar, and Peng (2005); Thi, Essig, and Amann (2012)	<ul style="list-style-type: none"> ● Awarded vs. estimated contract value ratio ● Supplier conformance to contract specifications ● Internal customer satisfaction
Time	Hochschorner and Finnveden (2006)	<ul style="list-style-type: none"> ● Procurement cycle time (from sourcing to contract execution) ● Percentage of procurements activities completed (placed) within standard time guidelines
Compliance	Trionfetti (2000); Thi, Essig, and Amann (2012)	<ul style="list-style-type: none"> ● Percentage of contracts awarded through non-competitive/open procedures ● Percentage of competitive contracts awarded through of the VFM/MEAT criterion
Innovation	Knutsson and Thomasson (2014); Edquist et al. (2015)	<ul style="list-style-type: none"> ● Firms' increased investment on innovation due to public procurement ● Firms' increased capability of innovation due to public procurement
Sustainability	McCrudden (2004); Amann et al. (2014)	<ul style="list-style-type: none"> ● Amount of patents due to public procurement ● Number of potential local suppliers identified ● Number of firms involved in local supplier development programmes

VFM, value for money; MEAT, most economic advantageous tender.

an administrative and clerical function (Matthews 2005), governments usually utilise purely cost-oriented measures to assess PP functioning (Afonso, Schuknecht, and Tanzi 2005; Quirck, 2005). The most common KPI is about saving as a result of the competitive bidding process (Bergman and Lundberg 2013). This is especially true when the procurement department does not hold considerable decision-making authority, but mainly acts as a service provider for other departments, and adheres to strict policies and guidelines (Verdeaux 2003). However, due to the sheer magnitude of PP at all government levels, and its importance for both the (local) economy and value creation for citizens, it seems restrictive to evaluate its impact through cost and saving metrics; consequently, we wonder how the PP-PMS can be designed to include performance areas other than cost. Therefore, we formulate the following research question:

RQ1: Beyond cost metrics, what is the appropriate set of performance areas and measures for PP?

In connection to the above research question, the procurement literature suggests that the maturity of the procurement function in planning its strategy, monitoring processes, and implementing improvement programmes drives the procurement status within the organisation (Murray 2001). We

conceive the procurement status as the extent to which procurement can act as a value-adding function, as a consequence of several factors, including recognition from other departments, the position in the organisation hierarchy, and the involvement in strategic planning (Thai and Piga 2007). Even in the public context, several scholars recognise the strategic value-adding potential of PP (e.g., Telgen, Harland, and Knight 2007; Thai and Piga 2007) and the need to assess its performance (Raymond 2008). As a consequence, we expect that the level of maturity of the PP-PMS would foster a greater status of the procurement department and therefore enable a greater value creation potential. Indeed, introducing compelling measures and metrics for procurement processes would be one of the basic ways to assess the role of the procurement department and support its evolutionary path to a higher status. The question is how the PP-PMS can be designed in order to catalyse the PP status. To this end, we formulate the following research question:

RQ2: In order to support the role of PP in public institutions, how can the PP-PMS be designed?

Finally, dealing with public institutions, we must consider the role played by regulation. Recent reforms influence the structure of PMSs at different governmental levels (McAdam et al. 2011). In some countries, every year the central government publishes a set of indicators that must be monitored and reported by public institutions, distinguished for departmental areas (this happens e.g., in the UK, Italy, Germany, and the Netherlands), including also guidelines about number and type of indicators to be measured and reported. These mandatory requirements may also affect the procurement area, as direct and/or indirect procurement measures are likely included. However, despite regulatory requirements enabling transparency and monitoring, they may lead public institutions to a misalignment between performance measures imposed by the regulation and the actual mission of public bodies. For example, McLean, Haubrich, and Gutiérrez-Romero (2007) suggest that general performance measures imposed by the government are often too general, thus missing the real picture of the PP system functioning. Thus, we are interested to understand how different regulatory contexts might influence the design of the PP-PMS and, for this reason, we formulate the third research question as follows:

RQ3: How does the regulation affect the design of the PP-PMS?

4. Research methodology

In order to test the proposed framework and the research hypothesis, a case-based research method was selected, more suitable for qualitative

understanding (Meredith 1998). Case studies provide new and creative insights, develop new theories and have high validity with practitioners (Voss, Tsikriktsis, and Frohlich 2002), especially when questions of why, what, and how are asked (Yin 1999).

4.1 Case selection

First, a decision in terms of public institutions to be included in the research was made. Considering the unit of analysis used by some previous works (e.g., Murray 2001; Bartlett and Dibben 2002; McAdam et al. 2011), we decided to focus our attention on local authorities as they seemed a convenient choice in terms of (1) sample size, (2) heterogeneity of spending amount, (3) possibility to make comparisons with other countries, and (4) potential relevance of results (Wollmann 2004).

In order to enable theoretical replication and extend the research generalisability, two convenient samples from different countries were designed (Italy and the UK). This way, more local governments with similar characteristics (but different level of maturity in managing procurement) can be compared and, at the same time, differences related to the regulatory context can be taken into account.

For Italy, local municipalities accessible in our geographical area (Lombardy, Italy) were first targeted, with more than 35,000 citizens and yearly spending amount greater than 40 million euros. Twenty-three municipalities were first contacted and asked to participate in the research project, and four of them accepted. For the UK, we focused the attention on the Welsh region, considering the 22 principal areas ('county councils') existing after the reform of 1998. Furthermore, we considered relevant statistical factors such as population density, level of spending, and past procurement department rating. In the end we targeted and involved four councils.

4.2 Case descriptives

Table 2 summarises the characteristics of the local authorities included in the analysis.

Some cases have been recorded with permission, while for others this was not possible due to confidentiality agreements. In these cases, two researchers were present and took notes during the meetings. However, we made sure that this did not affect the reliability of the information given, as the topics discussed did not show any social desirability bias or specific pattern across respondents. Interviews have been conducted (by two researchers) for at least 1 day per case, with interviewers' field notes used as the starting point for data analysis. More than 150 local government

Table 2. Descriptives of case studies.

	ID	Citizens	Spending	Procurement employees	Interviews	Job title
Italian sample	CLN	60.000	45 mln €	5 FTE	2	Head of Procurement, Procurement Officer
	HCB	72.000	45 mln €	10 FTE	2	Senior Procurement Manager, Procurement Officer
	HCM	75.000	60 mln €	15 FTE	1	Head of Procurement
	DPV	65.000	50 mln €	2 FTE	2	Head of Procurement, Procurement Officer
Welsh sample	CCY	180.000	£150 mln	18 FTE	2	Head of Procurement, Category manager
	CRH	250.000	£180 mln	24 FTE	2	Head of Procurement, Category manager
	HCF	350.000	£300 mln	18 FTE	1	Head of Procurement
	DVG	120.000	£100 mln	2 FTE	1	Procurement policy officer

(data and name are approximate for confidentiality agreements). FTE, full time equivalent.

reports and institutional documents have been scouted in order to complement information (e.g., financial statements, internal reports, governmental reports and so on). Afterwards, within and cross-case analyses were conducted (Eisenhardt 1989).

4.3 Interview protocol

The interview protocol has been designed around the three components of our study: PP strategy, PP-PMS characteristics, and PP status (Table 3).

5. Case analysis

Once we had rationalised information collected through the interviews, we opted for a quantitative coding approach to facilitate cross-case comparisons. Table 4 gives an overview of cases evaluation.

First, we characterised the procurement organisational model for each case, distinguishing between (Dimitri, Piga, and Spagnolo 2006) full centralisation (all the relevant procurement decisions are in the hands of a central public unit that is dedicated to satisfying the needs of public offices), full decentralisation (individual departments are delegated the power to decide how, what, and when to procure), and a hybrid configuration (central and local procurement units share the decision-making authority in procurement).

Then, considering that the procurement department's role within the public institution may vary consistently according to its role (Murray 2001; Telgen, Harland, and Knight 2007), we conceive the 'status' as the extent to which procurement can act as a value-adding function. Operationally, we measure the procurement status as the average of several organisational


Table 3. Structure of the interview protocol.

	Construct	Description	Main references	Interview question(s)
<i>PP STRATEGY</i>	<i>Goals</i>	Degree of which procurement objectives are defined (considering commercial, regulatory, socio-economic dimension)	Erridge & McIlroy (2002); Erridge (2005); Erridge and Henningan (2006)	Do you explicitly define commercial, regulatory and/or socio-economic goal when defining the yearly procurement strategic plan?
<i>PP-PMS</i>	<i>Performance</i>	Areas and type of performance measured (cost, quality, time, compliance, innovation, sustainability)	Rendon (2008), Afonso and Fernandes (2008), Caldwell et al. (2005)	Do you have a procurement PMS? Which types of performance are being measured? Can you indicate specific KPIs used for monitoring activities in your Department? Which of these performance are aligned with targets?
<i>PP STATUS</i>	<i>Reporting level</i>	CPO reporting line	Carr and Smeltzer (1997); Johnson and Leenders (2006)	Where the Procurement Department is positioned in the organisation chart?
	<i>Level of centralisation</i>	Degree to which procurement decision-making and operational activities are executed at a central level	Arnold (1999), McCue and Pitzer (2000), Dimitri, Piga, and Spagnolo (2006), Johnson and Leenders (2006)	Which is the percentage of spending which is directly managed and/or in charge to the Procurement Department?
	<i>Grouping criteria</i>	Criteria used for grouping procurement personnel	Mintzberg (1980); Lakemond, Echtelt, and Wynstra (2001)	How are resources grouped in the department? Are employees organised according to specific positions? (e.g., category managers; buying/contracting; p-cards administration; administrative support; accounts payable...)
	<i>Procurement recognition</i>	Procurement's role and capabilities as perceived by others	Carr and Smeltzer (1997); Cousins, Lawson, and Squire (2006)	How procurement's role and resources are considered by other Departments?
	<i>Span of control</i>	Type of activities executed by the Procurement Department	Erridge and McIlroy (2002); Johnson and Leenders (2006); Bakker (2008)	Which type of activities are directly executed by Procurement department?
	<i>Authority</i>	Degree of decisional authority on procurement activities	Birou and Fawcett (1993)	Which level of authority the Procurement department has on procurement activities (e.g., operational execution, decisional power, supportive role...)

CPO, chief purchasing officer.

Table 4. Characteristics of cases included in the analysis.

PP organisational model	Welsh sample				Italian sample			
	CCY	CRH	HCF	DVG	CLN	CCB	HCM	DPV
	Centralised	Centralised	Hybrid	Decentralised	Centralised	Centralised	Hybrid	Decentralised
PP status	99	86	71	8	74	68	87	15
Commercial goals in the strategic plan	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Regulatory goals in the strategic plan	Yes	Yes	No	No	No	No	Yes	No
Socio-economic goals in the strategic plan	Yes	Yes	Yes	Yes	No	Yes	No	No
No. of KPIs monitored	18	23	8	4	13	25	12	3
No. of KPIs monitored and published	4	5	3	1	4	5	4	1
No. of COST KPIs	7	13	2	3	7	9	7	1
No. of QUALITY KPIs	2	0	1	0	1	5	1	2
No. of TIME KPIs	1	1	1	0	1	9	1	0
No. of COMPLIANCE KPIs	4	6	2	1	4	0	3	0
No. of INNOVATION KPIs	0	0	0	0	0	0	0	0
No. of SUSTAINABILITY KPIs	4	2	2	0	0	2	0	0
No. of KPIs with PROCESS as unit of analysis	8	14	3	1	3	19	5	2
No. of KPIs with CONTRACT as unit of analysis	10	9	5	3	10	6	7	1
No. of KPIs for PP	18	23	6	1	13	20	8	2
No. of KPIs for other departments' procurement	0	0	2	3	0	5	2	1

characteristics reflecting such concepts as reporting level, level of centralisation, grouping criteria, span of control, purchasing recognition, and authority (Carr and Smeltzer 1997; González-Benito 2007; Telgen, Harland, and Knight 2007). In particular, a numeric scale from 0 to 100 was adopted for each item, and scores were assigned considering relevant subcomponents reported in the literature. For some items coding and scoring were straightforward (e.g., the level of centralisation was calculated as the ratio between the spending centrally managed by the procurement department and the total spending), while for others we went through several steps (e.g., the span of control required to assess whether or not procurement was involved in operational activities, and/or sourcing activities, and/or strategic and planning activities).

Finally, an in-depth understanding of the PP-PMS is provided through some information on the explicit statement of strategic goals, number and nature of KPIs monitored, and their unit of analysis.

6. Discussion

The research investigates the structure of the PP-PMS for four municipalities in Italy and four councils in Wales, analysing KPIs used in six performance areas (i.e., cost, time, quality, compliance, innovation, sustainability) and at different levels of analysis (contract/supplier, procurement department, and other departments). Despite some general indications given by government regulation, we observed that each local authority develops its own way for measuring KPIs, so it is not possible to find a unique definition for each performance area, and the specific indicators are not systematically reported. However, considering the main evidence summarised in the previous sections, we can provide an answer to the three formulated research questions.

6.1 *Performance areas and measures for PP*

Even though every case includes at least two performance areas in their PP-PMS, as opposed to what theory prescribes (e.g., Rhys, Boyne, and Enticott 2006; Erridge and McIlroy 2002), a precise correspondence between goals and performance measured is not always present. In some cases commercial goals are not defined, but cost indicators are measured anyway; in others socio-economic goals are promoted, but sustainability metrics are not defined (see Table 4).

Efficiency and cost KPIs are predominant, as more than 45% of measures explored relate to this dimension. This is not surprising, as this is the area traditionally monitored when dealing with procurement activities in the public sector, where there is the need to ensure resources are used in an

efficient way (e.g., Chan and Karim 2012). Cases demonstrate that there are different ways to evaluate the level of efficiency of PP; while local governments characterised by low-status procurement department limit their metrics to *'Efficiency savings'* or *'Budget respect for a given category'*, other institutions enrich this dimension measuring process efficiency (e.g., *'Average % savings through the use of e-auctions'*) and savings coming from the use of specific procurement tools (e.g., *'% of corporate spend channelled through collaborative arrangements'*).

Most importantly, evidence shows that, even in the least mature PP-PMS, cost is never the sole dimension included. Due to the regulative nature of PP, as well as the rigid policy and procedures set by local governments themselves, compliance is often included in PP-PMSs (19% of KPIs collected in the cases); they generally referred to type of bidding process used for awarding contract (e.g., *'number/value of procurement contracts awarded by means of non-competitive procedures/open/restricted procedure'*), they can also include aspects linked to the use of governmental tools (e.g., *'percentage of spending through the electronic marketplace'*) or respect of internal objectives, such as human resources development (e.g., *'hours of training for procurement professionals'*). Quality and time dimension, despite being quite diffused for private procurement PMS (e.g., Day and Lichtenstein 2006), are not so diffused in PP-PMS. Only some cases assess quality from the final user's point of view (e.g., *'Level of the customer satisfaction index'*), and time spent by procurement resources in executing strategic and operational activities (e.g., *'percentage of time dedicated to procurement planning'*). This is somewhat reasonable, as these aspects are implicitly defined at contract level (for supplier quality requirements) and by procurement regulation (imposing mandatory process time limit for the different procedures).

Sustainability measures are not diffused either, and usually refer to mandatory aspects to be monitored and reported (e.g., *'% of spending with local suppliers'*; *'number of contracts awarded to SMEs'*); only two cases monitor sustainability with additional KPIs including product/service requirements (e.g., *'% of awarded contracts in which environment-related technical dimensions are considered either in the selection or the award criteria'*).

Finally, as we can see, innovation measures are not included in any PP-PMS explored, suggesting that, despite the emphasis given to this dimension (Edquist et al. 2015), current PP-PMS are lagging behind.

Finally, we can notice that the levels of analysis targeted by PP KPIs are usually homogeneously included (52% of indicators refer to process level, 48% to contract level). Local governments usually set metrics for measuring procurement activities executed outside the procurement department in

cases of hybrid and decentralised configurations, particularly for monitoring the cost and the compliance area.

Thus, we can conclude that cost metrics represent a relevant area of PP-PMS, but need to be placed aside other measures (especially compliance metrics, closely linked to internal procedures and external regulation). In particular, KPIs in the quality and innovation areas should be developed, as they seem quite neglected. Most importantly, the cases show the possibility of a misalignment between PP objectives and KPIs monitored, which should be carefully avoided, as the lack of coherence between strategy and measures is the main cause of poor performance (Boyne et al. 2005).

6.2 PP-PMS and PP status

The cases can also help us in drawing some conclusions on the link between the 'status' of the procurement department within the authority and the characteristics of the PP-PMS.

It is evident that the higher the status, the higher the number of KPIs defined and monitored, as two cases (CCY and CRH) confirm. CCB is an exception, using a large number of indicators despite its medium status, but this is explained by the recent reorganisation of the department (evolving from a decentralised to a hybrid model), which was required to monitor performance. When the procurement department has only an operational and staff role (e.g., DVG and DPV), only a few and basic measures are defined ('savings' and 'budget alignment') and refer to external departments. This behaviour is somewhat damaging, hiding the real functioning of procurement activities, when they are executed by personnel without specific PP knowledge. When PP is affected by evident criticalities, structuring a sound PMS is essential to assure, at least, compliance and cost alignment; the case of CLN is a good example, as mainly cost and compliance KPIs are set, in order to constantly monitor activities and detect, as soon as possible, undesired behaviour of external users or cost increases for certain categories.

Furthermore, the cases show that, even when the number of KPIs monitored is significant, indicators do not equally split among different performance areas, as cost and compliance measures remain predominant; however, this is not necessarily a criticality, as where this happens (e.g., CCH, CRH, HCM), KPIs included are able to give managers an immediate understanding of the strengths and weaknesses of the process in any case.

Thus, we can conclude that, as the complexity and the level of detail of PP-PMS are a proxy of its status, in order to promote PP as a real value-adding function for public institutions, public managers should invest their

time in designing an architecture and a sample of KPIs able to give a whole understanding of its functioning, even though not all the areas should be necessarily covered at all levels (e.g., McAdam et al. 2011).

6.3 The role of regulation

European governments are giving local councils more power to decide how to spend public money, so they can meet people's needs; at the same time, effective performance reporting by councils is essential for ensuring accountability to residents and taxpayers as to how public money is spent and the quality of services delivered. In the UK, the openness of Local Government Bodies Regulations (http://www.legislation.gov.uk/ukdsi/2014/9780111113554/pdfs/ukdsi_9780111113554_en.pdf), as part of the Local Audit and Accountability Act, impose on local councils the 'Performance reporting framework', made up of 66 measures and a governance and management checklist of 24 items which together build a comprehensive picture of council performance (including PP). In Italy, the 150/2009 regulation on 'Local Government performance plan' requires local governments to establish (and monitor) strategic and operational performance, giving also some suggestions for KPIs definition in each function (including PP).

We can therefore draw some insights about the influence of government regulation on the PP-PMS. It is interesting to notice that, of a total of 106 KPIs collected during the interviews, only 25% of them are published (in metrics and values) in official local government documents. In none of the cases, did the number of KPIs monitored correspond to the number of KPIs made available to the public. We can therefore conclude that government directives on PMSs represent a driving force for the PP-PMS design, as local bodies are 'forced' to design performance metrics, but this is not enough to ensure the PP effectiveness. Indeed, PP-PMS must not be limited to mandatory metrics (e.g., '*number of electronic tenders*', '*average number of bids submitted in (open) competitive procedures*', '*number of procurement reports realized*') as they certainly demonstrate that specific objectives are set for PP, but are not sufficient to diagnose problems and identify potential areas of improvement.

7. Conclusions and future developments

This work aims to provide more in-depth evidence of the characteristics and structure of PMS for procurement in the public sector, relying on the growing importance of PP as a government function (Thai 2008), as well as the increasing attention on the linkage between strategy, goals,

and performance, also for the public sector (e.g., Rhys, Boyne, and Enticott 2006).

Assuming this perspective, our research questions aimed at studying what public institutions (i.e., local governments) are actually measuring, how much the structure of the PMS depends on the role that the procurement department is invested with within the authority, and the role of government regulation on PMS.

Empirical evidence shows that PP-PMSs are being developed, with some room for improvement. Most of the local governments included in the sample direct primary attention to cost and compliance indicators, with low attention to other traditional procurement areas (i.e., quality and time); with cost savings being the first evaluation parameter, it is not surprising that advanced contributions in areas such as innovation and sustainability are hardly measured, despite being part of the 'new public management' principles (e.g., Meier et al. 2007).

Moreover, a connection between the procurement department status and the depth and completeness of its PMS is found; when PP is considered really strategic, more indicators are likely to be defined and monitored (McAdam et al. 2011; Jung and Kim 2014). Similarly, we defined government directives as having a driving role towards a more structured approach to performance measurement, just being a starting point for the design of a complete set of indicators.

With these findings, the paper aims to contribute to research in two ways: on the one hand, it provides a synthetic framework (i.e., performance areas and level of analysis) for classifying procurement KPIs, in parallel with contributions by private PMS theories (e.g., Caniato, Luzzini, and Ronchi 2014); this framework is shown to be useful for analysing and comparing the structure and characteristics of procurement PMS for cases. On the other hand, empirical investigations gave us the possibility to analyse how procurement PMS are deployed operatively in local governments, investigating them from the broad process perspective, which is an exploration unique in its type and for the field of PP.

We claim our results to be interesting for practitioners as well, since our evidence supports the assumption that there is a mutual link between the evolution of the role of procurement in the public sector and approach in performance measurement. With the increase in the status and strategic contributions of PP, there is the need to build a comprehensive PMS, in order to assess its functioning in a new configuration (e.g., higher level of centralisation, broader scope of its activities..); moreover, designing a complete PMS could be a starting point for supporting an increase in the status of PP, as the attention to KPIs measured is generally considered as a proxy to the importance of the

function they refer to (Rhys, Boyne, and Enticott 2006). Public managers should also consider the fact that PP-PMS are driven (also) by regulation, which is subject to frequent change. In this regard, European directives are working towards a standardisation of approaches and procedures (e.g., European Single Procurement Document), enabling diffusion and replication of best practices (as happened in the private sector; Arlbjørn and Vagn Freytag 2012); however, as the process is still ongoing, managers should be able to design their system effectively by balancing guidelines defined at European and national level.

Of course, the research has its limitations; as the paper is descriptive in nature, the possibility of generalisation is limited, especially because a particular type of public institutions (i.e., local governments) is explored. Future developments could be oriented towards further case studies addressing different public institutions and comparing findings; otherwise, a more structured data collection (e.g., through survey) could be useful to test some of the specific links of the framework (e.g., goals and performance). Finally, it could also be interesting to expand the discussion on the linkage between country-level variables and PP-PMS structure (e.g., the role of culture, in connection with other studies, e.g., Moon 2000).

Disclosure statement

No potential conflict of interest was reported by the authors.

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