

Exploring the links between different performance information uses, NPM cultural orientation, and organizational performance in the public sector¹

by

Christian Nitzl

Universität der Bundeswehr München, christian.nitzl@unibw.de

MariaFrancesca Sicilia

Universita' degli Studi di Bergamo, mariafrancesca.sicilia@unibg.it

Ileana Steccolini

Newcastle University London, ileana.steccolini@newcastle.ac.uk

¹ The authors are listed alphabetically.

Exploring the links between different performance information uses, NPM cultural orientation, and organizational performance in the public sector

ABSTRACT

This paper looks at how the relationship between performance measurement system use(s) and organizational performance is affected by the *type* of performance information use and moderated by NPM cultural orientation. Analysing data from a survey of Italian public managers, it shows that only monitoring and attention-focusing types of uses of performance measures are directly associated with organizational performance, whereas strategic-decision making and legitimizing uses are not directly related with organizational performance. Moreover, a NPM orientation moderates positively the relationship between monitoring uses of performance information on organizational performance, and negatively the relationship between legitimizing uses and organizational performance.

Introduction

New Public Management (NPM) reforms were initially conceived of and described as the means to bring managerialism, entrepreneurialism, economic rationality and results orientation into the public sector (Osborne and Gaebler, 1992; Hood, 1991, 1995; Pollitt and Bouckaert, 2011; Olson, Guthrie and Humphrey 1998), supposedly replacing the traditional Weberian model of public administration, inspired by hierarchical forms of control, a formal compliance culture, and process orientation (Weber, 1922; Liguori et al., 2017). The principles underlying NPM have been translated into practice and made operational through an array of tools and systems, among which a central role has been played by performance measurement systems (Olson et al., 1998). Such systems started to be increasingly adopted in the public sector in the expectation that they would produce beneficial effects on organizational performance (OECD, 1997; Hatry, 1999; Verbeeten and Speklé, 2015). As such, scholars have explored the extent to which performance information is actually used, and the possible drivers of use (for example, Melkers and Willoughby, 2005; Ammons and Rivenbark, 2008; Johansson and Siverbo, 2009; Taylor, 2009; Moynihan and Pandey, 2010; Taylor, 2011; Moynihan and Hawes, 2012; Moynihan and Lavertu, 2012; Moynihan, Pandey and Wright, 2012a, 2012b; Kroll, 2013, 2014, 2015; Saliterer and Korac, 2013).

However, a recent meta-analysis (Gerrish, 2016) shows that measuring performance may not always improve public organizations' performance, while using performance measures appears to enhance it only under specific conditions. This suggests that further studies may be needed to explore such specific conditions under which the use of performance systems takes place and their effects on organizational performance.

Limited attention appears to have been devoted so far (with the notable exception of Speklé and Verbeeten, 2014 and Verbeeten and Speklé, 2015) to the diversity of types of uses of performance measures (for example, for monitoring goals, providing directions to the organizations, supporting decisions, justifying actions), and whether such diversity matter for organizational performance, as not every use of performance information may be necessarily conducive to improved performance. Moreover, different performance information uses may produce different effects depending on their interaction with the cultural orientation of the organization where they take place. Interestingly, empirical evidence on the role of culture in shaping the relationship between performance measure uses and organizational performance remains limited. This is even more

surprising in the light of the wide interest of scholars towards the cultural shift that should have been instilled by the NPM movement (for example, Hood, 1991; Dunleavy and Hood, 1994; Hughes, 1994).

This paper aims at closing this gap by looking at how the relationship between the use of performance information and organizational performance may be affected by the type of use and moderated by organizational cultural orientation. More specifically, the focus of the paper is on the possible role of NPM orientation in affecting the relationship between performance information uses and organizational performance.

Analysing data from a survey of 385 Italian municipal managers with direct responsibility for the provision of public services, it shows that different (including monitoring, strategic-decision making, attention-focusing and legitimizing) uses of performance information will have different relationships with organizational performance. Moreover, it highlights that organizational culture moderates the relationship between uses and organizational performance.

The paper is structured as follows. Section 2 reviews relevant literature on the uses of performance information and their relationship with organizational performance and culture and puts forward the related hypotheses. Section 3 presents the methods of the analysis. Section 4 reports the results and Section 5 discusses them. Finally, Section 6 draws conclusions and suggests implications for further research.

Literature review

Performance measurement and organizational performance

The adoption of performance measurement and management systems has been described as a central tenet of NPM reforms (Hood, 1995; Pollitt and Bouckaert, 2011), claimed to improve public sector performance (OECD, 1997; Hatry, 2007; Verbeeten and Speklé, 2015).

However, the few studies looking at the impacts of performance measurement on organizational performance have highlighted that such impacts are far from straightforward (Verbeeten, 2008; Poister, Pasha and Edwards, 2013; Speklé and Verbeeten, 2014; Sun and Van Ryzin, 2014; Hood and Dixon, 2015; Kroll, 2015; Gerrish, 2016). Among them, some contributions focus on the *availability* of performance measures (Walker, Damanpour, and Devece, 2011; Hvidman and Andersen, 2014; Nielsen, 2014). Looking at Danish schools,

Hvidman and Andersen (2014) highlight that performance management availability impacts positively on performance in private schools, but not in public ones. Nielsen (2014) shows that managerial authority over human resources positively moderates the effect of performance management on performance, whereas decentralizing goal setting works in the opposite direction. Moreover, Walker, Damanpour, and Devece (2011) find that the presence of performance management systems positively mediate the effect of innovations on organizational performance. Other studies specifically look at the relationship between performance information *use* and organizational performance, Su and Van Ryzin (2014) find a positive association between New York City public schools' performance information use and their outcomes, whereas Poister, Pasha, and Edwards (2013) show that the use of performance measures increases organizational outputs in the public transit industry. Kroll (2015) finds that the impact of managerial information use on performance is stronger if organizations have adopted a prospecting strategy, and tends to vanish for reactors. The recent studies by Speklé and Verbeeten (2014) and Verbeeten and Speklé (2015) suggest that the impact on performance is dependent not only on the intensity, but also on the type, of use, as well as on the degree of “contractibility” of services.

A recent meta-analysis of the literature on the impact of performance management on public organizations' performance (Gerrish, 2016) appears to corroborate the above results, confirming that measuring performance may not be enough to improve it, while using performance measures may, under some conditions, contribute to enhance it. Indeed, scholars have pointed out that performance measurement adoption may rather be followed by poor implementation, resistance, manipulation (Broadbent, Jacobs and Laughlin, 2001; De Lances Julnes and Holzer, 2001; Moynihan, Pandey and Wright, 2012b) or limited use of performance measures (Van Dooren, Bouckaert and Halligan, 2010). As such, a number of studies have identified environmental, organizational and individual variables which explain performance information use (for example, Melkers and Willoughby, 2005; Ammons and Rivenbark, 2008; Johansson and Siverbo, 2009; Taylor, 2009; Moynihan and Pandey, 2010; Taylor, 2011; Moynihan and Hawes, 2012; Moynihan and Lavertu, 2012; Moynihan, Pandey and Wright, 2012a, 2012b; Kroll, 2013, 2014, 2015; Saliterer and Korac, 2013). However, remarkably, limited consideration has been given to explore the factors and conditions that may affect the relationship between performance information use and organizational performance. The above studies point to the need to further

investigate such relationship, which may be affected by factors including, among others, the organizational cultural context where performance information is used, and the type of use of performance measures.

This paper aims at shedding new light on the relationship between performance information use and organizational performance, by looking at how this relationship is affected by the different use types, and the culture of the organization where use takes place. These aspects are further discussed in the next sub-sections, where hypotheses are advanced.

Diversity of uses and organizational performance

Conceptual contributions tend to acknowledge the existence of a variety of possible uses of performance measures (for example, Demski and Feltham, 1976; Burchell et al., 1980; Boland and Pondy, 1983; Ansari and Euske, 1987; Henri, 2006; with specific reference to the public sector, see also Behn, 2003; Van Dooren, Bouckaert and Halligan 2010; Moynihan, 2009; Moynihan, Pandey and Wright 2012a; De Lancer Julnes, 2008). For example, with reference to the public sector, Behn (2003) identifies eight different uses of performance information (evaluating, controlling, budgeting, motivating, celebrating, learning and improving), while Van Dooren, Bouckaert, and Halligan (2010) distinguish between control, steering, learning and accountability uses of performance information. The general literature on performance measurement systems has highlighted that they may serve different aims, ranging from supporting and improving decision making and managerial action (decision-facilitating uses, Demski and Feltham, 1976, Sprinkle, 2003) to justify and legitimize decisions and actions (Feldman and March, 1981; Henri, 2006; Francos-Santos et al., 2007). Uses aimed at facilitating decisions may include setting and monitoring goals, comparing expected and actual results, providing directions to the organization, supporting routine and non-routine decisions, supporting learning, giving accounts, steering and controlling. Legitimizing uses refer to the need of decision-makers to justify their actions to their counterparts within and outside the organization (Feldman and March, 1981), as information can be used for the purpose of rationalizing or legitimizing decisions and actions (Burchell et al., 1980; Ansari and Euske, 1987; Boland and Pondy, 1983). These uses have been found to be particularly diffused in the presence of divergent interests, uncertainty, and ambiguous goals (Meyer and Rowan, 1977; Burchell et al. 1980), where actors are expected to use performance information to convince counterparts within and outside the organization that actions and decisions are reasonable, acceptable and legitimate

(Feldman and March, 1981; Ansari and Euske, 1987).

Interestingly, however, most empirical studies on the public sector (reviewed in the previous sub-section) tend to adopt a mono-dimensional view of performance information use, looking mainly at whether or to what extent performance information is used to support decision-making (for example, Moynihan and Pandey, 2010; Kroll, 2013). Only a few empirical papers take into consideration the variety of performance information uses. More specifically, Moynihan, Pandey and Wright (2012a) distinguish between purposeful and political uses, suggesting that such variety may depend on the perceived social impact of actions. In their study of Dutch local governments, Verbeeten and Spekle' (2015) find that only monitoring and attention-focusing uses have a direct impact on organizational performance, whereas Speklé and Verbeeten (2014) show that using performance measures for attention-focusing purposes positively influences organizational performance, while using them for incentive purposes has a negative effect.

The limited consideration so far devoted to the possible impacts of different types of performance information uses suggests the opportunity to further explore their relationship with organizational performance.

Consistently with the above claims, this paper suggests that those uses of performance information aimed at facilitating and making better-informed decisions and fostering tension towards the attainment of pre-set targets will produce positive effects on organizational performance. Following Vandebosch (1999), Henri (2006), Verbeeten and Speklé (2015), Speklé and Verbeeten (2014), such (decision-facilitating) uses include monitoring (i.e. setting and monitoring goals, comparing expected and actual results), attention-focusing (i.e. providing directions to the organization), and strategic-decision-making uses (i.e supporting non-routine decisions).

On the contrary, legitimizing uses, aimed at justifying and rationalizing already made decisions, may be aimed more at preserving and supporting the status quo than at modifying how the organization works or fostering tension towards performance improvement. Moreover, an emphasis on using performance measures to justify decision may crowd out energies from performance improvement as discussed by Olson et al., 2001, who highlight the risks that an excessive focus on measuring and reporting may distract attention from public service improvement. Finally, as suggested by studies applying legitimacy theories to reporting (Deegan, 2002; Hackson and Milne, 1996; Roberts, 1992), legitimizing uses of performance measurement may even take place to a larger extent to justify situation where performance is not improving or proves unsatisfactory.

From the above, the following hypotheses are put forward:

H1: Monitoring uses of performance information will be positively associated with organizational performance.

H2: Attention-focusing uses of performance information will be positively associated with organizational performance.

H3: Strategic decision-making uses of performance information will be positively associated with organizational performance.

H4: Legitimizing uses of performance information will be negatively associated with organizational performance.

Performance information uses, culture and performance

Contingency literature (Burns and Stalker, 1961; Thompson, 1967; Lawrence and Lorsch, 1967) has a long tradition of exploring alignment (or fit) between environment, strategy, organizational structures and systems. A contingency-based body of research has developed over the last three decades to explore how performance measurement systems match certain environmental or organizational features, or how the latter moderate the relationship of performance measurement systems with performance (for reviews, see Chenhall, 2003; Langfield-Smith, 2007; Otley 2016). Within this literature, certain studies have focused on the “matching” (Venkatraman, 1989) between environmental, strategic and organizational variables and performance measurement systems. Others have looked at how different degrees of alignment among them may translate into better organizational performance, adopting a moderation perspective (Venkatraman, 1989). For example, they have looked at how the relationship between performance measurement systems and performance is affected by a moderator variable, eg., strategy, culture, task characteristics, the environment. Interestingly, among the studies that look at the relationship between performance information use and organizational performance in the public sector, only a few highlight that such relationship is affected by moderating variables, such as strategy (Kroll, 2015) and contractibility of services (Speklé and Verbeeten, 2014). However, as Moynihan (2009) points out, in order to better understand the relationship between performance information use and organizational performance in the public sector, it may be important to devote more attention to the factors that affect it, including (Moynihan, 2009: 597) advocacy, the political context, measurement ambiguity,

incentives, leadership, autonomy, employee motivations and beliefs, client treatments, stakeholder involvement and organizational culture.

This paper, drawing on contingent literature and addressing this call, looks at how organizational culture intervenes in the relationship between performance information use and organizational performance. Organizational culture appears to be a particularly relevant variable to be taken into consideration especially in the light of significant cultural shifts that have involved the public sector with the advent of the NPM movement, whose promise was to improve public sector organizations' performance (Ashworth 2012). Despite the link between the use of performance information and organizational culture having been investigated (e.g. Johansson & Siverbo (2009); Moynihan and Pandey 2011), no attention has been devoted to explore empirically how the interaction of the types of use and organizational culture may impact on organizational performance, whereas some uses of performance measures may be expected to be more aligned to specific organizational cultural orientations.

Organizational culture is a broad concept, consisting of different dimensions, layered along a continuum and including shared assumptions, beliefs, values, meanings and artifacts (Schein, 1985; Green, 1988; Deshpande and Webster, 1989; Henri, 2006). Fundamental assumptions are the unconscious elements of culture that are not directly knowable, behavioral norms are the common beliefs regarding acceptable and unacceptable behaviors, while values are the priorities assigned to certain states or outcomes. Artifacts and patterns of behavior are observable physical manifestations and patterns of activity. A classification of organizational cultures which is generally drawn upon in both private and public sector studies is Krakower and Zammuto (1991)'s, which captures observable and knowable elements of organizational cultures such as values, behavioral norms and patterns of behavior. This classification includes (Zammuto and Krakower, 1991) *developmental culture*, focused on flexibility, growth and innovation; *group culture*, focusing on employee cohesion and morale; *formal culture*, focusing on uniformity, coordination, and internal efficiency, and *result culture*, focusing on productivity, performance, result orientation.

Under this classification, culture has been generally seen as an antecedent of organizational performance, with previous studies showing that developmental (Marcoulides and Heck, 1993) and results-oriented organizational cultures (Verbeeten and Speklé, 2015) are positively associated with performance. Such studies have often looked separately at the relationships between types of cultures and organizational performance.

However, each organization will be generally characterized by a combination of “cultures”, with one or more to prevail over others. Such cultures may also reflect a more or less pronounced influence of the NPM movement and related reforms. In general the NPM movement has been described as multifaceted, aimed at fostering a multiplicity of values, beliefs and meanings, drawing on developmental, result as well as group cultures (Hood, 1991, 1995; Osborne and Gaebler 1992; Hughes, 1994; Gruening, 2001), while downplaying those related with a formal culture. More specifically, the NPM emphasis on productivity, goal orientation, efficiency appears to be in line with a result-oriented culture. The focus on flexibility and innovation is consistent with a developmental culture, whereas managerial autonomy, employees’ empowerment, decentralization of decision making, and sharing of a common vision appear to be coherent with a group culture (see also Parker and Bradley, 2000). NPM has also been generally described as emphasizing a shift from a focus on compliance, procedures and formal controls. As such, while NPM cannot be defined as being a type of culture, it can be seen as a movement which may have encouraged more attention towards beliefs, values and behaviors that are in line with developmental, group and result cultures, and de-emphasized those that are more aligned with a formal culture, more typical of the traditional model of public administration (Hood, 1991; Osborne and Gaebler 1992; Hughes, 1994). It is thus possible to say that an organization will have a stronger level of NPM orientation if it emphasizes a combination of developmental, group and result cultural elements, as compared to formal culture elements. In the light of these considerations, and of the fact that so far cultural elements have often been considered separately, this paper sets out to explore the role of NPM orientation, in terms of dominance of a combination of developmental, result and group cultures over the formal one, in the relationship between performance information uses and organizational performance.

Under a contingency perspective, as suggested above, performance measurement systems can be seen as artifacts, structures and systems that can be more or less consistent with the dominant values in an organizational context. Some uses of performance measures may be expected to be more aligned to specific organizational cultural orientations, with higher alignment translating into strengthened effects on performance. Conversely, a misalignment between some types of uses and certain types of organizational culture, causing tensions and/or resistance, may translate into weakened effects on performance. Thus, performance information uses will be likely to interact with extant culture, with the latter playing a moderating role in the relationship between performance information uses and organizational performance.

More specifically, a monitoring use of performance information, aimed at providing feedback on the differences between goals and output, will be more consistent with a context characterized by higher NPM orientation, focused on efficiency and attainment of results. Similarly, attention-focusing use, aimed at providing the organization with a common direction through communication and discussion, is likely to show a better alignment with NPM orientation, characterized by an emphasis on managerial autonomy, flexibility, and empowerment. Strategic decision-making use, aimed at facilitating complex and high-risk decision-making processes, is similarly likely to be aligned with and the focus on managerial autonomy, decentralization of decision making which to be found in an organization with a stronger NPM orientation.

On the contrary, a legitimizing type of use, focused on maintaining the status quo, or justifying choices and existing performance, and associated with politics and centralization of power in the hand of top managers appears to be potentially in contradiction with an NPM-orientated context where emphasis is placed on the achievement of better results, entrepreneurship and diffused empowerment. Such potential conflict between NPM orientation and the nature of the legitimizing use may affect negatively efforts towards high level of organizational performance.

As suggested above, the expectation is that higher alignment between the type of use and a NPM cultural orientation will translate in a higher performance. From this stem the following hypotheses:

H5a: A higher NPM orientation has a positive moderator effect on the relationship between monitoring and organizational unit's performance

H5b: A higher NPM orientation has a positive moderator effect on the relationship between attention focusing and organizational unit's performance

H5c: A higher NPM orientation has a positive moderator effect on the relationship between strategic decision-making and organization unit's performance

H5d: A higher NPM orientation has a negative moderator effect on the relationship between legitimizing and organizational unit's performance

The model to be tested is depicted in Figure 1.

[Figure 1 about here]

Methods

The research is based on an online survey conducted on Italian public managers. The Italian public sector has generally been described as a mild adopter of NPM reforms, and as a neo-Weberian country (Liguori et al., 2017; Pollitt and Bouckaert, 2011), where elements of managerialism have become blended with elements of the more traditional model of public administration. However, differences in the implementations of NPM reforms across Italian geographical areas have been documented (Anessi-Pessina and Steccolini, 2007; Anessi, Nasi and Steccolini, 2008; Anessi, Sicilia and Steccolini, 2012). Given this context, to ensure minimum variability in institutional, social and economic variables (see also Putnam, Leonardi and Nanetti, 1993; Anessi-Pessina and Steccolini, 2007), the survey was addressed to the 2,841 managers of organizational units of the Italian municipalities with at least 15,000 inhabitants located in three Northern Regions (Lombardia, Piemonte and Veneto), whose email addresses were publicly available on internet websites. The level of analysis chosen for this research is the organizational unit. In Italy, municipalities have jurisdiction over a large and heterogeneous number of services, including social care, education, local transport, urban planning and security, waste disposal. Given such heterogeneity, the high specialization of each organizational unit, and the limited mobility of personnel across units, in each municipality organizational units are potentially different from each other in terms of performance of services, performance measurement uses, service features as well as organizational culture (see also Cavalluzzo and Ittner, 2004; Speklé and Verbeeten, 2014). This intra-organizational variety is not problematic when focusing on organizational units, where higher homogeneity is guaranteed. The survey was administered online in two rounds (December 2014-January 2015/March-April 2015). The total respondents were 514 (with a response rate of 18%) which indicate an acceptable response rate for a survey study in Italy (see, Harzing 1997). Responses from organizational unit's managers indicating in the questionnaire that they were responsible for generic staff unit, such as HR or finance departments, were excluded from the dataset. This approach is consistent with previous studies (see also Speklé and Verbeeten, 2014) and allows focusing only on those organizational units that provide services that are typical of the public sector. The final usable responses were 385. With few exceptions, the number of respondents per organization is small. However, to gain a rigorous estimate of the extent to which the responses collected reflect a clustered structure, rather than being independent observations, the intra-class correlation coefficients (ICC) have been

assessed on all the variables employed in the regression model. The ICC measures the relatedness of clustered data, by comparing the variance within clusters with the variance between clusters. The ICC scores estimated using the available data set were close to zero, indicating that observations within the same local government are no more similar than observation from different municipalities. Thus, no hierarchical models were needed. To check for potential non-response bias, a two-sample t-test was run, using late respondents of each round as proxies for non-respondents. No statistically significant difference was found across responses. Moreover, features of respondents, in terms of age, gender and experience, were compared with those of local government public managers as reported in the document (Conto Annuale) yearly edited by the General Accounting Office. Most of them were aged between 50 and 59 years (52%) and had degree-level education (73%). They had worked in the public sector for an average of 26 years and in the municipality where they were at the time of response for an average of 23 years. These features are in line with those of the general population of Italian local governments' public managers. However, it has to be noticed that among the respondents women tended to be overrepresented (women accounted for about 50% of respondents, while they representing only about 35% of Italian local public managers).

The questionnaire was based mostly on items validated in previous studies, and was pre-tested. All variables are based on multiple items and measured on a seven-point Likert scale.

As all data are self-reported, common method bias (CMB) may influence the observed correlations between the constructs (Podsakoff et al., 2003). To avoid this problem several remedies were adopted (Chang et al., 2010). First, the complex relationships included in our research model are unlikely to be visualized by respondents, also given the complexity and length of the questionnaire. Second, the respondents were kept anonymous. Third, potential response bias was investigated by manually going through each individual filled-in questionnaire and by inspecting the variance across all items. The used questions in our questionnaire were as specific as possible, as recommended by Meier and O'Toole (2013).

It should also be pointed out that, although there has been increasing discussion about such risks (Meier and O'Toole, 2013; Spector, 2006; Jacobsen and Jensen, 2015), Walker and Andrews (2013), in a review paper, find that studies drawing upon archival data do not appear to be more robust than those based on questionnaires, and that the latter do not appear to overestimate effects as may be the case if the data suffered from common method bias. In addition, prior research suggests that subjective measures correlate with objective measures

strongly (Abernethy and Stoelwinder 1991; Dess and Robinson 1984; Verbeeten and Speklé 2015; Song and Meier, 2018). Given the specific aim of the present paper, it may also worth highlighting that, as Jacobsen and Jensen point out (2015: 15-16), common method variance does not create or inflate interaction effects, and may rather attenuate them.

The variables included in the model are listed and operationalized as follows. Their sources and the items used in the questionnaire to operationalize them are listed in appendix 1.

The measurement of performance in the public sector raises a number of critical issues, including performance being an ambiguous concept, the difficulty of finding valid measures for it (for a discussion of relevant literature, see also Song and Meier, 2018). Archival measures have been criticized as they are not always present, or because they only quantify the most easily measurable aspects of performance, but not others, or they may only express the expectations of specific categories of stakeholders (Song and Meier, 2018). Similarly, perceptual measures have been criticized on the grounds of being more prone to common method bias risks, of citizens not always being able to evaluate the quality of the services, and of self-reported performance being potentially affected by positivity bias. The present study relies on the well-known scale developed by Van de Ven and Ferry (1980) (see appendix 1). Respondents were asked to indicate the score of their unit compared to other comparable ones on each of the following seven dimensions: the quantity or amount of work produced; the quality or accuracy of work produced; the number of innovations or new ideas developed by the unit; reputation of ‘work excellence’; attainment of unit production or service goals; efficiency of unit operations; morale of unit personnel. The choice of this measure is the result of the critical issues discussed above, the absence of valid archival measures for Italian local governments, or of measures of citizens’ satisfaction. At the same time, this measure is widely diffused in existing studies and as such accepted in the scholarly arena. Moreover, as discussed above, a number of actions were taken to reduce common method bias risks.

To measure the different *uses of performance measures* Henri’s (2006) instrument was used. According to it, monitoring use implies provision of feedback regarding the differences between goals and output; attention-focusing use involves discussion, debate, exchanges of information and contributes to provide the organization with a common direction; strategic decision-making use occurs when information facilitate decision making process; legitimizing use takes place when performance information systems are used to justify and validate

past actions. Respondents were asked with multiple questions to indicate how often they used the performance measurement system for each of the four different types.

New Public Management (NPM) orientation was measured adopting Zammuto and Krakower's (1991) instrument. More specifically, in accordance with the explanations above the variable was created subtracting the construct related to formal culture to the combination of the constructs related to developmental, result and group cultures (for example, Parker and Bradley, 2000). This measure allows to reflect the strength of NPM orientation for each organizational unit.

To control for the effects of other factors that in the literature are recognized as impacting organizational performance, measures of *goal clarity*, *knowledge of transformation processes* and *measurability of goals* were added to the model. Extant literature has generally shown that performance is better in the presence of higher goal clarity, output measurability and knowledge of the processes related to the service delivery (Chun and Rainey, 2005; Jung and Rainey, 2008; Speklé and Verbeeten, 2014). Goal clarity and measurability measures are slightly adapted versions of the ones used in Verbeeten (2008) and Speklé and Verbeeten (2014). Knowledge of the transformation process was measured based on Speklé and Verbeeten (2014).

The dataset was analyzed using Partial Least Squares analysis (PLS) with the software SmartPLS 3 (Ringle, Wende, and Becker 2014). PLS is especially useful for estimating complex models with direct, indirect, and moderator effects (Henseler and Fassott 2010; Sosik, Kahai, and Piovoso 2009). A precondition for analyzing a path model is that residuals (error terms) have to be uncorrelated. PLS as a soft modeling approach does not suffer under such precondition of uncorrelated residuals (Falk and Miller 1992). As a composite-based approach PLS is also particular useful for modelling formative measurements² as well as for constructs with unclear specifications (Sarstedt et al. 2016). In the present study, a number of concepts included in the model (eg., organizational performance or measurability of goals) encompass different aspects that contribute to fully cover their domains, thus requiring a formative measurement approach (Nitzl and Chin 2017; Hair et al. 2017). Formative measurement with a Mode A setting (ie, where correlation weights are used for developing a construct measurement, (Lohmöller 1989) was chosen as this is the best choice for explanation when the

² In contrast to reflective measurements, formative measurements capture different aspects of a construct domain. The can be seen as man-made or artefact such as it typical for performance measurements. Formative measurements are caused by the items in contrast to reflective measurement where the assumption is that an underlying construct cause the items.

sample size is moderate and indicators are collinear as Becker, Rai, and Rigdon (2013) found out in a Monte-Carlo simulation. The sample size of 385 is much above the necessary sample size of 109 for detecting relevant effects in the present PLS model (Nitzl 2016).

Results

The analysis followed a two-step approach for the evaluation of data (Hair et al. 2017). The first step was aimed at assessing the construct measurements. The second step involved the evaluation of path coefficients' explanatory power, moderating effects, and the impact of control variables. Based on the repeated use of indicators the concrete construct values for the different dimensions of organizational culture were calculated in a separate PLS model (Wold 1982). In contrast to a simple building of mean values, this workaround has the advantage that measurement errors are explicitly considered. The construct values for NPM orientation was calculated by subtracting the formal culture construct values from the sum of group, developmental, and result culture construct values.

Table 1 reports the results of the evaluation of the construct measurements, showing, for each item, the measurements weights (used to estimate the relevance of an item), the p-values (used to estimate if the influence is significant), and the variance inflation factors (VIF) (to evaluate the multicollinearity among the items belonging to a construct) (Diamantopoulos and Winklhofer 2001). A significant weight of an item indicates if a certain item is a relevant part of the construct measurement and the VIF value indicates if an indicator contains enough information that is not included in the other items which are assigned to a construct measurement.

[Table 1 about here]

For calculating the p-values, the bias-corrected (BCa) bootstrapping with 2,000 bootstraps was selected. Based on the recommendations by Hair et al. (2017) three items which are non-significant and/or have a lower loading than 0.5 were deleted (CLARITY_GOALS_6, GOAL_MEAS_2, GOAL_MEAS_5). All other items have significant weights and higher loadings than 0.5. The value of the VIF for all items is below the critical value of 5.

After evaluating the construct measurements, the significance of the path coefficients for the relationships hypothesized between the constructs was tested running the bias-corrected (BCa) bootstrapping procedure with 2,000 bootstraps and a two-side test. Moderating effects of NPM orientation were modeled using a two-stage approach with standardized data (Hair et al. 2017). The interaction terms (e.g., Monitoring use * NPM Orientation) reflects the moderator effects. All the estimates of the main model and the model with moderator effects are reported in Table 2.

[Table 2 about here]

The main effects model (Table 2) shows that the hypothesized positive relationships between monitoring-type (H1) and attention-focusing-type (H2) uses of performance information and organizational performance are supported. Different from expectations, strategic-decision-making (H3) types of uses are not significantly associated with performance. Since legitimizing uses do not show a significant relationship with organizational performance, H4 does not appear to be supported.

When looking at the interactions between uses and NPM orientation, the findings show that NPM orientation moderates the relationship between certain uses of performance information and organizational units' performance. More specifically (Table 2), as expected (H5a), NPM orientation moderates positively and significantly the relationship between monitoring and organizational performance. This means that in municipalities with a high NPM orientation (+1 standard deviation) the effect of monitoring uses on performance is 0.407 and with a low NPM orientation (-1 standard deviation) the effect is 0.135. Moreover, H5d appears to be confirmed as a negative moderation effect is found between legitimizing uses and organizational units' performance. This, in turn, means that in municipalities with a high NPM orientation (+1 standard deviation) the effect of legitimizing uses on performance is -0.088 and with a low NPM orientation (-1 standard deviation) the effect is 0.080. Differently, NPM orientation does not appear to moderate the relationship between attention-focusing and strategic-decision-making uses and organizational units' performance. Thus, H5b and H5c are rejected.

Another finding worth mentioning is that the relationship between NPM orientation and performance is not significant. This points to the role of NPM orientation as a pure moderator (Henseler and Fassott 2010).

Looking at control variables, goal clarity and knowledge of the transformation process appear to be positively associated with performance, whereas goal measurability influence is negative. Including these control variables in the model also means that other path relationships are not influenced by these factors. Furthermore, robustness checks were performed. The questionnaire was sent out once more in 2017 to the managers who had responded in 2015. 106 responses were received and were used for a multi-group analysis with the original sample. The analysis showed that there are no significant differences between the 2015 and 2017 samples for all path relationships in the model. Hence the results are stable over time. As a further check, the model was run also adopting a reflective measurement approach and results were stable, confirming the strength of the findings.

Discussion

Looking at the link between performance information use and organizational performance, this paper explores how such relationship is affected by the purpose for which the information is used and the cultural orientation of the context where such use takes place.

A first set of findings show that different types of use of performance information exist and appear to have different relationships with organizational performance. Public managers confirm to use performance information both for legitimizing their actions and decisions, and for monitoring, strategic-decision-making and attention-focusing purposes. However, these different uses have different relationships with their organizational units' performance. Monitoring and attention-focusing uses appear to be positively associated with organizational performance, whereas strategic-decision-making use does not have a significant association with it. These results are in line with Verbeeten and Speklé (2015), who find a marginally significant positive direct effect of monitoring on performance and a stronger positive effect for attention-focusing. The findings suggest that when performance measures are used to give a common direction to the unit and to keep track of the attainment of goals, this appears to affect positively organizational performance. Using measures to establish shared vocabularies and views and focus attention on common issues and success factors probably catalyses attention, focus and energies towards the attainment of common goals, thus being positively associated with organizational unit's performance. Monitoring results and regularly tracking the level of attainment of goals, similarly, appears to strengthen attention towards the achievement of goals and

thus the improvement of performance. On the contrary, the use of measures to facilitate strategic decision-making, and to support non-routine decisions on important issues, may not be directly associated with organizational performance. This may reflect an underlying weakness of performance measurement systems in providing information that is suited to nurture and support effective strategic decision making processes and non-routine activities. Similarly, the use of performance measures to legitimize action, justifying and validating decisions, is not associated with organizational units' performance, probably because this use is not intended to bring about change or lead the organization towards goal attainment, but rather to preserve the status quo or even explain or defend existing performance. However, differently from expectations, such use does not appear to have a negative association with performance.

A second set of findings show that NPM orientation appears to moderate the relationship between some of the types of performance information uses and organizational units' performance. More specifically, NPM orientation does not seem to affect the relationship between attention-focusing and strategic-decision-making uses and organizational performance. On the contrary, NPM orientation appears to play a significant role in moderating the relationship between other performance information uses and organizational units' performance. More specifically, as expected, when performance measures are used for legitimizing purposes in a context characterized by a stronger NPM orientation their effect on organizational unit's performance is negative. This may be due to the fact that legitimizing uses, aimed more at justifying and defending positions and choices, are less consistent with a cultural orientation focusing on innovation, entrepreneurship, results focus, shared vision and cooperation. On the contrary, NPM orientation positively moderates the relationship between monitoring use and the performance of the organizational unit, probably because setting and monitoring goals, comparing expected and actual results are more consistent with a NPM orientation.

In a nutshell, the alignment or misalignment between the type of performance information use and NPM orientation appears to translate into better or worse performance.

Such results suggest that the fit between the cultural orientation and the type of performance information use may be taken into consideration when explaining why the introduction and adoption of performance measurement systems has been successful in some cases, yet failed in others.

An additional reflection comes from the finding that NPM orientation does not directly influence organizational units' performance, suggesting that, at least in the context under analysis, the NPM orientation acts more as a pure moderator than as a direct driver of performance.

Conclusions

Underlying the diffusion of performance measurement systems in the public sector is the idea that the adoption, implementation, and use of performance information will produce beneficial effects on organizational performance. However, an increasing body of empirical studies shows that performance measurement systems in the public sector also produce unexpected or undesired effects, and that their positive impacts on performance cannot be taken for granted. This suggests the need for stronger consideration of the specific conditions under which performance measures are used (Moynihan, 2009). In exploring such conditions, this paper extends previous literature in two directions. On the one hand, it considers multiple types of uses of performance information and their relationship with organizational performance, showing that not all the types of performance information uses are directly associated with (better) performance. On the other hand, it looks at the role of cultural orientation in shaping the relationship between performance information use and organizational performance. More specifically, the paper focuses on the possible role of NPM orientation as a moderator in the relationship between performance information uses and organizational performance.

Among the different types of uses, monitoring and attention-focusing appear to be positively associated with organizational performance. On the contrary, when measures are used for other purposes, such as strategic–decision-making and legitimizing they do not seem to have any significant relationship with organizational performance. Interestingly, the results change when the alignment between uses and NPM orientation is taken into consideration. In particular, NPM orientation appears to negatively moderate the relationship between legitimizing uses of performance information and organizational performance, whereas it positively moderates the relationship between monitoring uses of performance information and organizational performance. This suggests that cultural orientation plays an important role in explaining the effect of uses on organizational performance. In particular, a misalignment between NPM orientation and use appears to produce a negative impact on performance, whereas an alignment produces a positive effect.

It is interesting to notice that some uses, though existing, do not show any significant association with organizational performance. However, they may be relevant for other reasons, such as building consensus, keeping organizational equilibria, individual well-being, etc. Additionally, rather than being alternative, the various uses may be complementary. These considerations call for further investigations on the reasons underlying the uses that do not present any association with performance (strategic decision-making and legitimizing), and for their effects and consequences at both the individual, team, organizational as well as inter-organizational levels. An additional research avenue may be represented by looking at the roles of other possible moderators of the relationship between performance information use and performance, and how the different uses combine and interact in affecting organizational variables, including performance.

These findings also bear relevant implications for managers and policy makers. In general, one-fits-all approaches to the design of performance measurement systems should be avoided, whereby different possibilities of uses must be taken into consideration to ensure their benefits. Moreover, the fit between uses and the predominant cultural orientation must be taken into consideration to ensure desired impacts on performance, as some uses may not be suitable in highly innovative, result-oriented and flexible contexts. In general, when deciding on the adoption, or evaluating the impacts, of performance measurement reforms, it may be useful to pay stronger attention to their fit with public sector organizations' cultural orientation.

As any study, this paper presents limitations, some of which have been discussed, together with the actions adopted to mitigate them, in the methods section. First, it is focused on a neo-Weberian country, and, more specifically, one from Southern Europe and thus the results may be a reflection of the specific context taken into consideration. Second, though a number of actions were taken to reduce the risks of common method bias, this study may suffer from the limitations related to its being a cross-section study based on self-reported responses. Third, the measure of performance used in this paper is based on perceptions rather than archival indicators. This presents both advantages and disadvantages. On the one hand, subjectivity may reduce accuracy. On the other, it allows to rely on the views of key informants, who are supposed to be well aware of the actual performance of their units (and not only the one reported in official documents). Also, subjective measurements are seen as being more inclusive and able to capture more heterogeneous aspects which are difficult to measure with archival data (Kroll, 2015). Moreover, not always are valid archival performance measures available to account for the variety of local public services. Fourth, the response rate remains in line

with the limited rates which are usually registered in Europe. Finally, the present analysis specifically focuses on those units that are directly responsible for the provision of public services. However, a fruitful avenue of future research may involve the inclusion of staff units in the analysis³.

[Appendix about here]

³ We thank one of the anonymous reviewers for pointing this out.

References

- Abernethy, M. A., and J. U. Stoelwinder. 1991. "Budget use, task uncertainty, system goal orientation and subunit performance: A test of the 'fit' hypothesis in not-for-profit hospitals." *Accounting, Organizations and Society* 16 (2): 105–20.
- Agbejule, A. 2011. "Organizational culture and performance: the role of management accounting system." *Journal of Applied Accounting Research* 12 (1): 74 – 89.
- Ammons, D., and W. Rivenbark. 2008. "Factors Influencing the Use of Performance Data to Improve Municipal Services: Evidence from the North Carolina Benchmarking Project." *Public Administration Review* 68 (2): 304-331.
- Anessi-Pessina, E., and I. Steccolini. 2007. "Effects of Budgetary and Accruals Accounting Coexistence: Evidence from Italian Local Governments." *Financial Accountability and Management* 23 (2): 113–131.
- Anessi-Pessina, E., Nasi, G., and Steccolini, I. 2008. "Accounting Reforms: Determinants of Local Governments' Choices". *Financial Accountability and Management* 24(3): 321–42.
- Anessi Pessina E., Sicilia M., Steccolini I. (2012). "Budgeting and Rebudgeting in Local Governments: Siamese Twins?". *Public Administration Review* 72(6), pp. 875-884.
- Ansari, S., and K.J. Euske. 1987. "Rational, rationalizing, and reifying uses of accounting data in organizations." *Accounting, Organizations and Society* 12 (6): 549–570.
- Ashworth R. 2012. "Organizational culture", In: Ashworth R., Boyne G., and T. Entwistle. *Public Service Improvement, Theories and Evidence* (98–119). Oxford University Press.
- Becker, J.-M., A. Rai, and E. Rigdon. 2013. "Predictive validity and formative measurement in structural equation modeling: Embracing practical relevance." Paper presented at the Paper presented at the ICIS, Milan, Italy.
- Behn, R. D. 2003. "Why measure performance? Different purposes require different measures." *Public Administration Review* 63 (5): 586-606.
- Boland, R., and L.R. Pondy, 1983. "Accounting in organizations: A union of natural and rational perspectives." *Accounting, Organizations and Society* 8 (2-3): 223-234.
- Brewer, G., and R. Walker, 2010a. "Red tape: the bane of public organizations?." In: Walker, R., A. Boyne, and G. Brewer. *Public Management and Performance: Research Directions* (110-126). Cambridge University Press.
- Brewer, G., and R. Walker. 2010b. "The Impact of Red Tape on Governmental Performance: An Empirical Analysis." *Journal Public Administration Research and Theory* 20 (1): 233-25.
- Broadbent, J., and R. Laughlin. 1998. "Resisting the 'new public management': absorption and absorbing groups in schools and GP practices in the UK." *Accounting, Auditing and Accountability Journal*, 11 (4): 403-435
- Broadbent, J., K. Jacobs,. and R. Laughlin. 2001. "Organisational resistance strategies to unwanted accounting and finance changes: The case of general medical practice in the UK." *Accounting, Auditing & Accountability Journal* 14 (5): 565-586.
- Burchell, S., C. Clubb, A. Hopwood, J. Hughes, and J. Nahapiet. 1980. "The roles of accounting in organizations and society." *Accounting, Organizations and Society* 5 (1): 5–27.
- Cavalluzzo, K.S., and C.D. Ittner. 2004. "Implementing performance measurement innovations: evidence from government." *Accounting, Organizations and Society* 29: 243–267.

- Chang, S. J., A. van Witteloostuijn, L. Eden, 2010. "From the Editors: Common method variance in international business research." *Journal of International Business Studies* 41 (2): 178–184.
- Chenhall, R. H. 2003. "Management control systems design within its organizational context: Findings from contingency-based research and directions for the future." *Accounting, Organizations and Society* 28 (2): 127-168.
- Chun, Y.H., and G.H. Rainey. 2005. "Goal ambiguity and organizational performance in U.S. federal agencies." *Journal of Public Administration Research and Theory* 15 (4): 529–557.
- Deegan, C. 2002. "Introduction. The legitimising effect of social and environmental disclosure – a theoretical foundation." *Accounting, Auditing and Accountability Journal* 15 (3): 282–311.
- De Lancer, J.P., and M. Holzer. 2001. "Promoting the utilization of performance measures in public organizations: An empirical study of factors affecting adoption and implementation." *Public Administration Review* 61 (6): 693–708.
- De Lancer Julnes. P. 2008. "Performance Measurement Beyond Instrumental Use". In *Performance information in the public sector: How it is used*. Houndmills, edited by S. Van de Walle, and W. Van Dooren, 58-71. UK: Palgrave.
- Deshpande, R., and Jr, F. E. Webster. 1989. "Organizational culture and marketing: Defining the research agenda." *The Journal of Marketing* 53 (1): 3-15.
- Dess, G.G., and R.B. Robinson. 1984. "Measuring organizational performance in the absence of objective measures: the case of the privately-held firm and conglomerate business unit." *Strategic Management Journal* 5 (3): 265–73.
- Demski, J. S., and Feltham, G. A., 1976. *Cost determination: a conceptual approach*. Ames, IA: Iowa State University Press.
- Diamantopoulos, A., and H. M. Winklhofer. 2001. "Index Construction with Formative Indicators: An Alternative to Scale Development". *Journal of Marketing Research*, 38 (2): 269-277.
- Dunleavy, P., and C. Hood. 1994. "From old public administration to new public management." *Public Money & Management* 14 (3): 9-16.
- Falk, R.F., and N.B. Miller. 1992. *A Primer for Soft Modeling*. Akron, OH: University of Akron Press.
- Feldman, M.S., and J.G. March. 1981. "Information in organizations as signal and symbol." *Administrative Science Quarterly* 26 (2): 171-186.
- Franco-Santos, M., M. Kennerley, P. Micheli, V. Martinez, S. Mason, D. Bernard Marr, and A. Gray. 2007. "Towards a definition of a business performance measurement system." *International Journal of Operations and Production Management* 27 (8): 784–801.
- Gerrish, E. 2016. "The Impact of Performance Management on Performance in Public Organizations: A Meta-Analysis." *Public Administration Review* 76 (1): 48–66.
- Green, S. 1988. "Understanding corporate culture and its relation to strategy." *International Studies of Management and Organization* 18 (2): 6–28.
- Greenwood, R., and C. R. Hinings. 1993. "Understanding strategic change: The contribution of archetypes." *Academy of Management Journal* 36 (5): 1052-1081.
- Gruening, G. 2001. "Origin and Theoretical Basis of the New Public Management NPM." *International Public Management Journal*, 4 (1): 1-25.
- Hackson, D., and M. J. Milne. 1996. "Some determinants of social and environmental disclosures in New Zealand companies." *Accounting, Auditing & Accountability Journal* 9 (1): 77–108.

- Hair J.F. Jr., G. T. M. Hult, C. Ringle, and M. Sarstedt. 2017. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (2nd ed.). Thousand Oaks: Sage.
- Harzing, A.-W. 1997. "Response Rates in International Mail Surveys: Results of a 22-Country Study." *International Business Review* 6 (6): 641–665.
- Hatry, H. P. 1999. *Performance measurement: Getting results*. Washington, DC: The Urban Institute.
- Henri, J.F. 2006. "Organizational culture and performance measurement systems." *Accounting, Organizations and Society*, 31 (1): 77–103.
- Henseler, J., and G. Fassott. 2010. "Testing Moderating Effects in PLS Path Models: An Illustration of Available Procedures." In *Handbook of Partial Least Squares: Concepts, Methods and Applications (Springer Handbooks of Computational Statistics Series, vol. II)*, edited by V. Esposito Vinzi, W. W. Chin, J. Henseler, and H. Wang, 713–735. Heidelberg, Dordrecht, London, New York: Springer.
- Hood, C. 1991. "A public management for all seasons?" *Public Administration*, 69 (1): 3–19.
- Hood, C. 1995. "The 'New Public Management' in the 1980s: Variations on a theme?" *Accounting, Organizations and Society* 20 (2–3): 93–109.
- Hood, C., and R. Dixon. 2015. "What we have to show for 30 years of new public management: Higher costs, more complaints." *Governance* 28 (3): 265–267.
- Howard, L.W. 1998. "Validating the competing values model as a representation of organisational cultures." *International Journal of Organizational Analysis* 6 (3): 231–250.
- Hughes, O. 1994. *Public Management and Administration*. London: Macmillan.
- Hvidman, U. and S.C. Andersen. 2014. "Impact of Performance Management in Public and Private Organizations." *Journal of Public Administration Research and Theory* 24 (1): 35–58.
- Jacobs, K. 2013. "Making sense of social practice: theoretical pluralism in public sector accounting research: a reply." *Financial Accountability and Management* 29 (1): 111–115.
- Jakobsen, M., and R. Jensen. 2015. "Common method bias in public management studies." *International Public Management Journal* 18 (1): 3–30.
- Johansson, T., and S. Siverbo. 2009. "Explaining the Utilization of Relative Performance Evaluation in Local Government: A Multi-theoretical Study Using Data from Sweden." *Financial Accountability & Management* 25 (2): 197–224.
- Jung, C. S., and H. G. Rainey. 2008. "Developing the concept of program goal ambiguity and explaining federal program performance." *Academy of Management Proceedings*.
- Kroll, A. 2013. "The other type of performance information: Nonroutine feedback, its relevance and use." *Public Administration Review* 73 (2): 265–276.
- Kroll, A. 2014. "Why performance information use varies among public managers: Testing manager-related explanations." *International Public Management Journal* 17 (2): 74–201.
- Kroll, A. 2015. "Drivers of Performance Information Use: Systematic Literature Review and Directions for Future Research." *Public Performance and Management Review* 38 (3): 459–486.
- Lapsley, I. 2009. "New public management: The cruellest invention of the human spirit?" *Abacus* 45 (1): 1–21.
- Liguori M., and I. Steccolini. 2014. "Accounting, innovation and public-sector change. Translating reforms into change?" *Critical Perspectives on Accounting* 25 (4/5): 319–323.

- Liguori M., and I. Steccolini. 2011. "Accounting change: explaining the outcomes, interpreting the process." *Accounting, Auditing and Accountability Journal* 25 (1): 27–70.
- Liguori, M., S. Rota, and I. Steccolini. 2017. "Studying administrative reforms through textual analysis: the case of Italian central government accounting." *International Review of Administrative Sciences* 84 (3).
- Lohmöller, J.-B. 1989. *Latent Variable Path Modelling with Partial Least Squares*. Heidelberg: Physica.
- Marcoulides, G. A., and R. H. Heck. 1993. "Organizational culture and performance: Proposing and testing a model." *Organization Science* 4 (2): 209–225.
- Melkers, J., and K. Willoughby. 2005. "Models of Performance-Measurement Use in Local Government." *Public Administration Review* 65 (2): 180–190.
- Meier, K. J., and L. J. O'Toole. 2013. "Subjective organizational performance and measurement error: Common source bias and spurious relationships." *Journal of Public Administration Research and Theory*, 23 (2): 429–456.
- Meyer, J.W., and B. Rowan. 1977. "Institutionalized organizations: Formal structure as myth and ceremony." *American Journal of Sociology* 83 (2): 340–363.
- Modell, S. 2009. "Institutional research on performance measurement and management in the public sector accounting literature: A review and assessment." *Financial Accountability & Management* 25 (3): 277–304.
- Moynihan, D. P. 2009. "Through a Glass Darkly: Understanding the Effects of Performance Regimes." *Public Performance & Management Review* 32 (4): 586–598.
- Moynihan, D., and D. Hawes. 2012. "Responsiveness to Reform Values: The Influence of the Environment on Performance Information Use." *Public Administration Review* 72 (suppl 1): 95–105.
- Moynihan, D., and S. Lavertu. 2012. "Does Involvement in Performance Management Routines Encourage Performance Information Use? Evaluating GPRA and PART." *Public Administration Review* 72 (4): 592–602.
- Moynihan, D. P., and S. Pandey. 2010. "The big question for performance management: Why do managers use performance information?" *Journal of Public Administration Research and Theory* 20 (4): 849–866.
- Moynihan, D., S. Pandey, and B. Wright. 2012a. "Prosocial Values and Performance Management Theory: The Link between Perceived Social Impact and Performance Information Use." *Governance* 25 (3): 463–483.
- Moynihan, D., S. Pandey, and B. Wright. 2012b. "Setting the Table: How Transformational Leadership Fosters Performance Information Use." *Journal of Public Administration Research and Theory* 22 (1): 143–164.
- Nielsen, P. 2014. "Performance management, managerial authority, and public service performance." *Journal of Public Administration Research and Theory* 24 (2): 431–458.
- Nitzl, C. 2016. "The Use of Partial Least Squares Structural Equation Modelling (PLS-SEM) in Management Accounting Research: Directions for Future Theory Development." *Journal of Accounting Literature* 39: 19–35.
- Nitzl, C., and W. W. Chin. 2017. "The case of partial least squares (PLS) path modeling in managerial accounting research." *Journal of Management Control* 28 (2): 137–156.
- OECD. 1997. *In search of results: performance management practices*. PUMA.

- Olson, O., J. Guthrie, and C. Humphrey. 1998. *Global Warning! Debating International Developments in New Public Financial Management*. Oslo: Cappelen Akademisk Forlag.
- Olson, O., C. Humphrey, and J. Guthrie. 2001. "Caught in an evaluatory trap: a dilemma for public services under NPFM." *European Accounting Review* 10 (3): 505–522.
- Osborne, D., and T. Gaebler. 1992. *Reinventing government. How the Entrepreneurial Spirit is Transforming the Public Sector*. Addison-Wesley: Reading, MA.
- Otley, D. 2016. "The contingency theory of management accounting and control: 1980-2014." *Management Accounting Research* 31 (1): 45–62.
- Parker, R., and L. Bradley. 2000. "Organisational culture in the public sector: evidence from six organisations." *The International Journal of Public Sector Management* 13 (2): 125–141.
- Podsakoff, P. M., S. B. MacKenzie, J. Y. Lee, and N. P. Podsakoff. 2003. "Common method biases in behavioral research: a critical review of the literature and recommended remedies." *Journal of applied psychology* 88 (5): 879–903.
- Poister, T., O., Pasha, and L. Edwards. 2013. "Does performance management lead to better outcomes? Evidence from the U.S. public transit industry." *Public Administration Review* 73 (4): 625–636.
- Pollitt, C., and G. Bouckaert. 2011. *Public management reform: A comparative analysis-new public management, governance, and the neo-weberian state*. Third Edition. Oxford: Oxford University Press.
- Putnam, R. D., R. Leonardi, and R.Y. Nanetti. 1993. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, NJ: Princeton University Press.
- Ringle, C. M., S. Wende, and J.-M. Becker. 2014. SmartPLS 3: www.smartpls.de.
- Roberts, R.W. 1992. "Determinants of Corporate Social Responsibility Disclosure: An Application of Stakeholder Theory" *Accounting, Organizations and Society* 17(6): 595–612.
- Saliterer, I., and S. Korac. 2013. "Performance information use by politicians and public managers for internal control and external accountability purposes." *Critical Perspectives on Accounting* 24 (7-8): 502-517.
- Sarstedt, M., J. F. Hair, C. M. Ringle, K. Q. Thiele, and S. P. Gudergan. 2016. "Estimation issues with PLS and CBSEM: Where the bias lies!" *Journal of Business Research*, 69 (10): 3998-4010.
- Schein, E. H. 1985. *Organisational culture and leadership: A dynamic view*. San Francisco CA: Jossey-Bass.
- Speklé, R., and F. H M. Verbeeten. 2014. "The use of performance measurement systems in the public sector: Effects on performance." *Management Accounting Research* 25 (2): 131–146.
- Song, M., and K. M. Meier. 2018. "Citizen Satisfaction and the Kaleidoscope of Government Performance: How Multiple Stakeholders See Government Performance" *Journal of Public Administration Research And Theory* 1–17, doi:10.1093/jopart/muy006
- Sosik, J. J., S. S. Kahai, and M. J. Piovosio. 2009. "Silver Bullet or Voodoo Statistics? A Primer for Using the Partial Least Squares Data Analytic Technique in Group and Organization Research." *Group Organization Management* 34 (1): 5–36.
- Sun, R., and G. G. Van Ryzin. 2014. "Are performance management practices associated with better outcomes? Empirical evidence from New York public schools." *American Review of Public Administration* 44 (3): 324–338.

- Taylor, J. 2009. "Strengthening the Link between Performance Measurement and Decision Making." *Public Administration* 87 (4): 853–871.
- Taylor, J. 2011. "Factors Influencing the Use of Performance Information for Decision Making in Australian State Agencies." *Public Administration* 89 (4): 1316–1334.
- Van de Ven, A. H., and D. L. Ferry. 1980. *Measuring and assessing organizations*. New York: John Wiley.
- Van de Walle, S., and W. Van Dooren (edited). 2008. *Performance information in the public sector: How it is used*. Houndmills. UK: Palgrave.
- Van Dooren, W., G. Bouckaert, and J. Halligan. 2010. *Performance Management in the Public Sector*. London: Routledge..
- Van Helden, J. G. 2005. "Researching Public Sector Transformation: the Role of Management Accounting." *Financial Accountability and Management* 21 (1): 99–133.
- Van Helden, J.G., Å, Johnsen,. and J. Vakkuri. 2008. "Distinctive research patterns on public sector performance measurement of public administration and accounting disciplines." *Public Management Review* 10 (5): 641–651.
- Vandenbosch, B. 1999. "An empirical analysis of the association between the use of executive support systems and perceived organizational competitiveness." *Accounting Organizations and Society* 24 (1): 77–92.
- Verbeeten, F. H. M., and R. F. Speklé. 2015. "Management Control, Results-Oriented Culture and Public Sector Performance: Empirical Evidence on New Public Management." *Organization Studies* 36 (7): 953–978.
- Verbeeten, F.H.M. 2008. "Performance management practices in public sector organizations: Impact on performance." *Accounting, Auditing and Accountability Journal* 21 (3): 427-454.
- Walker, R., and R. Andrews. 2013. "Local Government Management and Performance: A Review of Evidence" *Journal of Public Administration Research and Theory* 25 (1): 101–133.
- Walker, R., Damanpour, F. and C. Devece. 2011. "Management innovation and organizational performance: The mediating effect of performance management." *Journal of Public Administration Research and Theory* 21 (2): 367–386.
- Wold, H. 1982. "Soft Modeling: The Basic Design and Some Extensions." In *Systems Under Indirect Observations: Part II*, edited by K. G. Jöreskog and H. Wold, 1-54. Amsterdam: North-Holland.
- Zammuto, R. F., and J. Y. Krakower. 1991. "Quantitative and qualitative studies of organizational culture." *Research in Organizational Change and Development* 5 (1): 83–114.

Figure 1 – Theoretical model

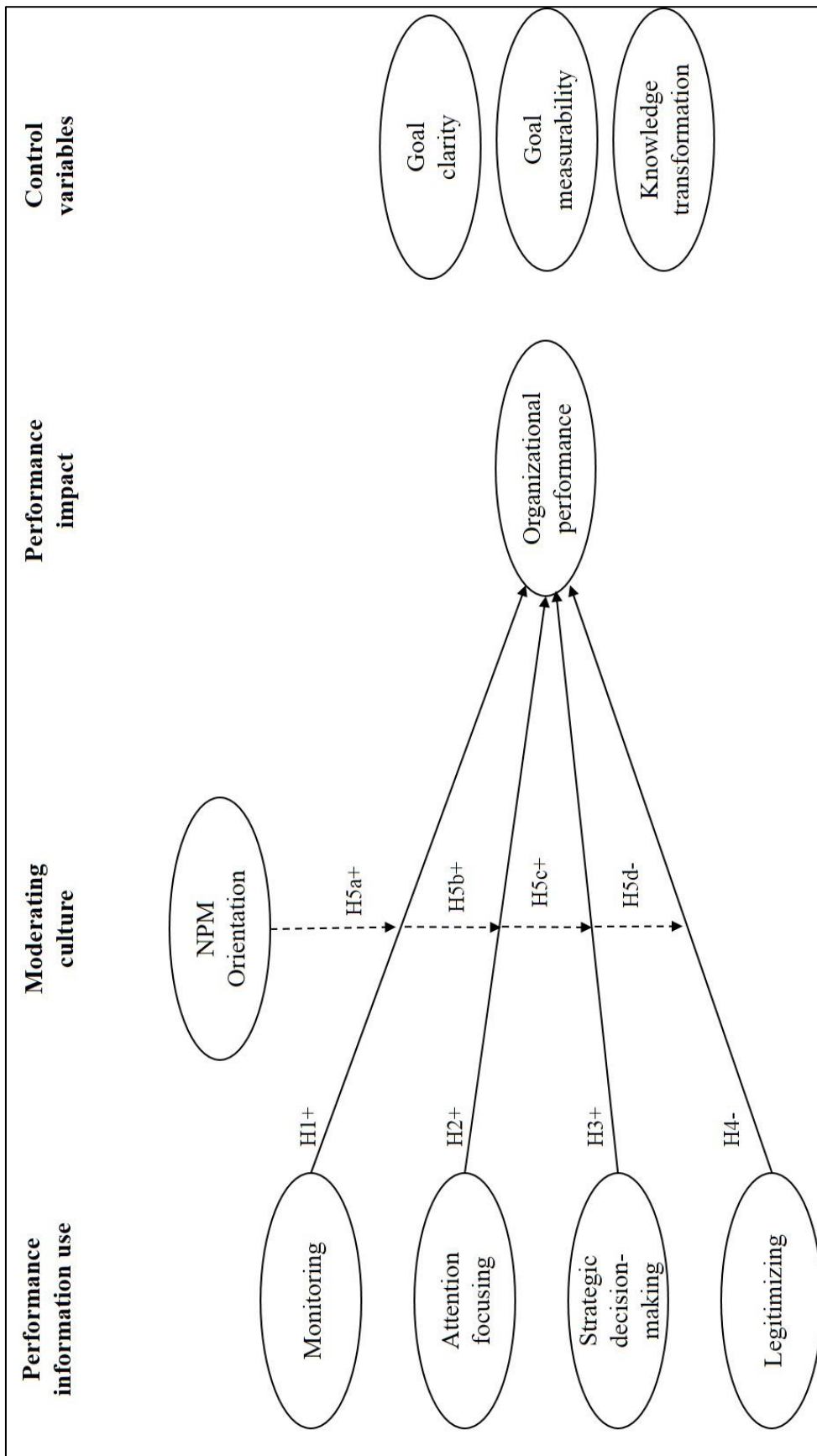


Table 1 – Evaluation of the construct measurements

	Weights	P Values	VIF	Loadings
GROUP_CULTURE_1 -> GROUP	0.298	0.000	1.482	0.750
GROUP_CULTURE_2 -> GROUP	0.278	0.000	1.336	0.669
GROUP_CULTURE_3 -> GROUP	0.372	0.000	1.451	0.781
GROUP_CULTURE_4 -> GROUP	0.393	0.000	1.389	0.763
FORM_CULTURE_1 -> FORMAL	0.254	0.000	1.435	0.630
FORM_CULTURE_2 -> FORMAL	0.383	0.000	1.194	0.677
FORM_CULTURE_3 -> FORMAL	0.314	0.000	1.557	0.725
FORM_CULTURE_4 -> FORMAL	0.442	0.000	1.357	0.799
DEVELOP_CULTURE_1 -> DEVELOPMENTAL	0.298	0.000	1.478	0.749
DEVELOP_CULTURE_2 -> DEVELOPMENTAL	0.300	0.000	1.344	0.710
DEVELOP_CULTURE_3 -> DEVELOPMENTAL	0.341	0.000	1.803	0.833
DEVELOP_CULTURE_4 -> DEVELOPMENTAL	0.350	0.000	1.598	0.798
RESULTS_CULTURE_1 -> RESULTS	0.369	0.000	1.609	0.812
RESULTS_CULTURE_2 -> RESULTS	0.284	0.000	1.137	0.584
RESULTS_CULTURE_3 -> RESULTS	0.353	0.000	1.519	0.785
RESULTS_CULTURE_4 -> RESULTS	0.333	0.000	1.512	0.772
ATTENTION_FOCUSING_1 -> Attention	0.201	0.000	2.346	0.821
ATTENTION_FOCUSING_2 -> Attention	0.181	0.000	2.791	0.848
ATTENTION_FOCUSING_3 -> Attention	0.203	0.000	2.554	0.847
ATTENTION_FOCUSING_4 -> Attention	0.174	0.000	3.017	0.843
ATTENTION_FOCUSING_5 -> Attention	0.189	0.000	3.287	0.863
ATTENTION_FOCUSING_6 -> Attention	0.143	0.000	2.357	0.761
ATTENTION_FOCUSING_7 -> Attention	0.121	0.000	2.285	0.748
CLARITY_GOALS_1 -> GoalClarity	0.220	0.000	1.953	0.792
CLARITY_GOALS_2 -> GoalClarity	0.217	0.000	2.328	0.809
CLARITY_GOALS_3 -> GoalClarity	0.251	0.000	3.394	0.899
CLARITY_GOALS_4 -> GoalClarity	0.243	0.000	2.882	0.862
CLARITY_GOALS_5 -> GoalClarity	0.255	0.000	2.418	0.848
CLARITY_GOALS_6 -> GoalClarity	0.008	0.701	1.015	-0.094
LEGITIMIZATION_1 -> Legitimizing	0.159	0.000	1.400	0.605
LEGITIMIZATION_2 -> Legitimizing	0.134	0.000	2.245	0.754
LEGITIMIZATION_3 -> Legitimizing	0.152	0.000	2.451	0.800
LEGITIMIZATION_4 -> Legitimizing	0.143	0.000	3.829	0.851
LEGITIMIZATION_5 -> Legitimizing	0.139	0.000	3.458	0.845
LEGITIMIZATION_6 -> Legitimizing	0.132	0.000	3.245	0.859
LEGITIMIZATION_7 -> Legitimizing	0.127	0.000	3.010	0.786
LEGITIMIZATION_8 -> Legitimizing	0.140	0.000	3.877	0.818
LEGITIMIZATION_9 -> Legitimizing	0.139	0.000	3.142	0.828
MONITORING_1 -> Monitoring	0.285	0.000	2.650	0.880
MONITORING_2 -> Monitoring	0.289	0.000	2.402	0.866
MONITORING_3 -> Monitoring	0.262	0.000	3.624	0.901
MONITORING_4 -> Monitoring	0.293	0.000	3.398	0.898
GOAL_MEAS_1 -> Goalmeas	0.171	0.000	1.227	0.556
GOAL_MEAS_2 -> Goalmeas	0.148	0.003	1.200	0.466
GOAL_MEAS_3 -> Goalmeas	0.310	0.000	2.062	0.820
GOAL_MEAS_4 -> Goalmeas	0.312	0.000	2.068	0.830
GOAL_MEAS_5 -> Goalmeas	-0.017	0.626	1.081	0.055
GOAL_MEAS_6 -> Goalmeas	0.205	0.000	1.393	0.622
GOAL_MEAS_7 -> Goalmeas	0.289	0.000	1.308	0.679
PERFORMANCE_1 -> Performance	0.119	0.000	1.346	0.543
PERFORMANCE_2 -> Performance	0.186	0.000	1.779	0.732
PERFORMANCE_3 -> Performance	0.236	0.000	1.464	0.709
PERFORMANCE_4 -> Performance	0.194	0.000	1.758	0.752
PERFORMANCE_5 -> Performance	0.182	0.000	1.468	0.674
PERFORMANCE_6 -> Performance	0.247	0.000	1.747	0.776
PERFORMANCE_7 -> Performance	0.223	0.000	1.805	0.772
STRATEGIC_DECISION_MAKING_2 -> Strategic	0.187	0.000	3.450	0.871
STRATEGIC_DECISION_MAKING_3 -> Strategic	0.223	0.000	2.896	0.850
STRATEGIC_DECISION_MAKING_4 -> Strategic	0.156	0.000	2.367	0.806
STRATEGIC_DECISION_MAKING_5 -> Strategic	0.130	0.000	2.292	0.780
STRATEGIC_DECISION_MAKING_6 -> Strategic	0.119	0.000	1.901	0.710
STRATEGIC_DECISION_MAKING_7 -> Strategic	0.176	0.000	2.639	0.828
STRATEGIC_DECISION_MAKING_8 -> Strategic	0.223	0.000	2.718	0.858
TRANSF_PROC_KNOWL_1 -> KnowTransf	0.370	0.000	1.502	0.797
TRANSF_PROC_KNOWL_2 -> KnowTransf	0.202	0.000	1.610	0.650
TRANSF_PROC_KNOWL_3 -> KnowTransf	0.479	0.000	1.570	0.856
TRANSF_PROC_KNOWL_4 -> KnowTransf	0.221	0.000	1.856	0.743

Table 2 – PLS effects models

	Main effects model	Moderator model
NPM Orientation	-0.022	-0.027
Monitoring use	0.288***	0.271***
Attention focusing use	0.129**	0.138**
Strategic decision making use	-0.084	-0.083
Legitimizing use	-0.002	-0.004
Monitoring use * NPM Orientation		0.136**
Attention focusing use * NPM Orientation		-0.057
Strategic decision making use * NPM Orientation		0.022
Legitimizing use * NPM Orientation		-0.084*
Goal clarity	0.265***	0.261***
Goal measurability	-0.087	-0.092*
Knowledge of transformation processes	0.268***	0.369***
	R2 = 0.396 R2 adjusted= 0.383	R2 = 0.407 R2 adjusted= 0.387

* significant at 10%; ** significant at 5%; *** significant at 1%.

Appendix: Survey questions, item-level descriptives and indicator loadings

Performance information uses

Please indicate to what extent the following uses reflect how you actually use the performance measurement system (1 = strongly disagree, 7 = strongly agree):

	mean	s.d.
Monitoring		
To track progress towards goals	5.391	1.015
To review key measures	5.282	1.035
To monitor results	5.665	0.910
To compare outcomes to expectations	5.630	0.926
Attention-focusing		
To tie the organizational unit together	5.060	1.199
To enable the organizational unit to focus on common issues	5.104	1.148
To enable the organizational unit to focus on your critical success factors	5.003	1.151
To develop a common vocabulary in the organizational unit	5.000	1.188
To provide a common view of the organizational unit	5.195	1.153
To enable discussion in meetings of superiors, subordinates and peers	5.145	1.179
To enable continual challenge and debate underlying results, assumptions and action plans	4.898	1.270
Strategic decision-making		
To make strategic decisions once the need for a decision is identified, and an immediate response is required	5.104	1.188
To make strategic decisions once the need for a decision is identified, and an immediate response is not required	5.146	1.237
To make decisions when it is difficult to differentiate among plausible solutions to a problem (i.e. they cannot be easily rank ordered by preference) because each has good arguments	4.885	1.211
To make decisions when encountering a problem that is unstructured and has not been encountered before	4.917	1.235
To make decisions when you have been recently faced with a similar decision	4.604	1.282
To anticipate the future direction of the unit, as opposed to responding to an identifiable problem	4.893	1.308
To make a final decision on a strategic issue of major importance	5.161	1.267
Legitimation		
To confirm your understanding of the activities	5.208	1.123
To justify decisions	4.846	1.313
To verify assumptions	5.073	1.168
To maintain your perspectives	4.810	1.367
To support your actions	5.060	1.260
To reinforce your beliefs	4.623	1.341
To stay close to the business	4.664	1.328
To increase your focus	4.611	1.276
To validate your point of view.	4.525	1.346

Organization unit's culture

Please indicate the extent to which you agree with the following statements (1 = strongly disagree, 7 = strongly agree):

	mean	s.d.
Developmental culture		
My organizational unit is very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks	4.479	1.449
The head of my organizational unit is generally considered to be an entrepreneur, an innovator, or a risk taker	4.227	1.453
The glue that holds my organizational unit together is commitment to innovation and development. There is an emphasis on being first	4.206	1.449
My organization unit emphasizes growth and acquiring new resources. Readiness to meet new challenges is important	4.899	1.482
Formal culture		
My organizational unit is very formalized and structured place. Bureaucratic procedures generally govern what people do	4.514	1.434
The head of my organizational unit is generally considered to be a coordinator, an organizer, or an administrator	5.579	1.031
The glue that holds my organizational unit together is formal rules and policies. Maintaining a smooth-running organization is important here	4.878	1.298
My organization unit emphasizes permanence and stability. Efficient, smooth operations are important.	5.229	1.220
Results culture		
My organization unit is very production oriented. A major concern is with getting the job done.	5.180	1.385
The head of my organizational unit is generally considered to be a producer, a technician, or a hard-driver.	5.392	1.059
The glue that holds my organizational unit together is the emphasis on tasks and goal accomplishment. A production orientation is commonly shared.	4.603	1.330
My organization unit emphasizes competitive actions and achievement. Measurable goals are important.	4.540	1.487
Group culture		
My organisation unit is a very personal place, it is like an extended family.	5.158	1.324
The head of my organizational unit is generally considered to be a mentor, a sage, or a father or mother figure.	4.216	1.433
The glue that holds my organizational unit together is loyalty and tradition. Commitment to this organization runs high.	4.393	1.475
My organization unit emphasizes human resources. High cohesion and morale in the organization are important.	5.284	1.327

Organization unit's performance

Please indicate the performance of your organizational unit as compared to other units on each of the following dimensions (1 = strongly negative; 7 = strongly positive)

	mean	s.d.
The amount of work and/or the number of products produced in your unit	5.684	1.091
The accuracy of work produced in your unit and/or the quality of the goods delivered	5.872	0.821
No of innovations, new ideas and improvement in processes implemented	5.371	1.199
The reputation for work excellence of you unit	5.603	1.025
The morale of unit personnel	5.073	1.283
The attainment of production or service level goals of your unit	5.777	0.864
The efficiency of operations within your unit	5.358	1.059

Goal Clarity

Please indicate the extent to which you agree with the following statements (1 = strongly disagree, 7 = strongly agree):

	mean	s.d.
My unit's mission is unequivocal	5.715	1.150
My unit's mission is written on paper and is communicated internally and externally	5.164	1.473
My unit's goals are unambiguously related to the mission	5.464	1.363
The set of goals of my unit is internally inconsistent (reverse coded)	5.418	1.235
My unit's goals are specific and detailed	5.432	1.323
My unit's goals keep changing as a consequence of political development	4.764	1.577

Measurability of goals

Please indicate the extent to which you agree with the following statements (1 = strongly disagree, 7 = strongly agree):

	mean	s.d.
The goals of my unit are expressed in a wholly quantitative way (e.g. budget, productivity, numbers)	4.825	1.399
The goals of my unit are expressed in no more than 5 performance indicators	4.671	1.624
The set of performance metrics provides a complete picture of the results to be achieved	4.699	1.474
The performance measures of the unit are unambiguously related to the goals of the organizations	4.997	1.468
The attainment of our goals depends significantly on external factors	4.832	1.459
The causal relation between resource allocation and goal achievement is absolutely clear	4.537	1.539
The effect of our efforts become visible within a year	4.607	1.478

Knowledge of the transformation process

Please indicate the extent to which you agree with the following statements (1 = strongly disagree, 7 = strongly agree):

	mean	s.d.
In performing our tasks, there is a logical way to proceed	5.053	1.387
The unit's primary processes can only be performed in one specific and documented way.	4.535	1.491
Within the unit, it is entirely clear how to perform our tasks.	5.410	1.204
In performing their tasks, unit employees rely on standard procedures and rules.	4.505	1.524