

A Learning Based Approach to Performance Management: Drivers of learning-oriented use of performance information

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Abstract

The purpose of this paper is to add to the empirical knowledge on drivers of learning-oriented use of performance information paying special interest to the creation of learning forums. On the basis of survey responses from public managers in Danish municipalities we examine whether public managers' self-reported learning-oriented use of performance information is related to structural factors such as the creation of learning forums and by providing adequate support capacity to the work with performance management, by task-related factors such as the measurability of the organizations' tasks and the quality of data provided and/or to cultural factors such as having an innovative culture? Moreover, we want to understand, how these factors may be related, as we examine whether the effect of establishing learning forums on the learning-oriented use of performance information is positively mediated the more support capacity that is provided, the more measurable the organization's tasks is and the more innovative an organization's culture is.

The paper shows that structural as well as task-related aspects of organization matters, as both the creation of learning forums, having adequate support capacity and the measurability of tasks are positively significantly related to learning-oriented use of performance information. Moreover, it shows that having adequate resources, capabilities, and technology to make performance management work significantly mediate the effect of learning forums.

Introduction

During the past three decades performance measurement systems have become widespread across the OECD world (Moynihan, 2008; Moynihan & Pandey, 2010; Radin, 2006; Pollitt & Bouckaert, 2011; Kroll, 2015). Performance measurement practices have been adopted in almost all aspects of contemporary governance (Moynihan, Pandey & Wright, 2012: 141), and they have become important and unavoidable elements for every public organisation. It seems that performance management is here to stay, and that this trend is unlikely to be reversed (Moynihan & Pandey, 2010).

The spread of performance measurement practices is both external and internal motivated. One purpose is that governments have to justify their expenditures by giving account of what has been achieved with them in order to ensure that tax money is spent efficiently and effectively (Kroll, 2015). Another is more internal in the sense of improved decision-making and improved public performance (Moynihan, 2008: 7). Despite these prudent purposes performance measurement systems have, however, created remarkable contradictions as especially frontline staff (but also public managers) experience disempowerment and increased external control (contrary to the premises of greater managerial autonomy) (Jacobsen et al., 2017; Nielsen, 2014), and dysfunctional effects such as goal displacement, tunnel vision and gaming (Bevan & Hood, 2006; Smith, 1995, Hood, 2006; 2012). Moreover, it is argued that performance measurement practices may crowd out the employees intrinsic and public service motivation (Andersen & Pedersen, 2016; Frey & Jegen, 2001). Thus, Gerrish (2016) argues that despite their potential there is only a small positive effect of performance measurement practices in public organizations.

The first step towards reaching the potential of performance measurement practices is that public organizations have to collect and distribute information on the results of their services. However, just collecting data does not automatically lead to improvements, which is why it is essential to understand what happens to performance information after it is collected, analyzed and distributed (Hatry, 2006; Hatry, 2008; Van Dooren & Van de Walle, 2008; Van Dooren, Bouckaert & Halligan, 2010, Kroll, 2015). Only if performance information is used in day-to-day decision-making may performance measurement practices be assessed as successful (Moynihan, 2008; Van Dooren, Bouckaert, & Halligan, 2010). Thus, studying the use and nonuse of performance data in decision-making has become a highly relevant and fast-growing research area (Ammons & Rivenbark, 2008; de Lancer Julnes & Holzer, 2001; Dull, 2009; Kroll, 2013; Melkers & Willoughby, 2005; Moynihan & Hawes, 2012; Moynihan & Pandey, 2010; Taylor, 2011; Kroll, 2015; Askim, Johnsen & Christophersen, 2008). In this paper we want to zoom in to a certain kind of use of performance information, as we want to study learning-oriented use of performance information. This is because a lot of the critique targeted at public organizations implies a failure to use information and a failure of organizational learning. Moreover, a special focus on organizational learning (contrary to giving account to an external audience) may reduce the risk of performance measurement practices leading to the experience of disempowerment, crowding out of the employees motivation and unintended effects such as gaming and manipulation. Thus, we argue that a learning-oriented approach to performance management may be the way towards reaching the potential of performance measurement practices. Although the concept of organi-

zational learning - that organizations can improve if organizational actors identify and use information to improve actions - is the key assumption that underpins much of the performance management literature there is relatively little research done on learning-oriented use of performance information in public sector organizations (Moynihan & Landuyt, 2009). The purpose of this paper is therefore to add to the empirical knowledge on drivers of learning-oriented use of performance information paying special interest to the creation of learning forums.

On the basis of survey responses from public managers in Danish municipalities we examine whether public managers' self-reported learning-oriented use of performance information is related to structural factors such as the establishment of learning forums and providing adequate support capacity to the work with performance management, by task-related factors such as the measurability of the organizations' tasks and the quality of data and/or to cultural factors such as having an innovative culture? Moreover, we want to understand, how these factors may be related, as we examine whether the effect of establishing learning forums on the learning oriented use of performance information is enhanced the more support capacity that is provided, the more measurable the organization's tasks are and the more innovative an organization's culture is.

The paper shows that structural as well as task-related aspects of organization matters, as both the creation of learning forums, having adequate support capacity and the measurability of tasks are positively significantly related to learning-oriented use of performance information. Moreover, it shows that having adequate resources, capabilities, and technology to make performance management work positively significantly mediate the effect of learning forums.

The paper is structured in five sections. Section 2 presents a review of the literature on performance information use, organizational learning and factors that may drive learning-oriented use of performance information. On the basis of the literature we outline an analytic framework comprising a set of hypotheses about which factors that may drive learning-oriented use of performance information, and how these factors may interact with learning forums and mediate the effect of them. In section 3 we present the research design, data, and methods we employ. Section 4 presents the results of the analysis, and in the fifth and final section, we discuss the results of the analysis and draw conclusions, as well as we assess limitations in our study, identify implications for practice, and give suggestions for future research.

Analytical Framework and a Review of the Literature

This section presents the central concepts of the study; performance information, uses of performance information and organizational learning.

Performance information focuses on the results and achievements of public organizations (Kroll, 2015; Hatry, 2006; Pollitt & Bouckaert, 2011) meaning the outputs and outcomes of the public service as well as its efficiency (a ratio of outputs and inputs) and its effectiveness (a ratio of outcomes and outputs). The information is quantitative, and it is pre-

sented in an aggregated format. The performance information is systematically derived following a systematic process where 1) a measurement object is defined; 2) indicators are selected; 3) data are collected, 4) analysed and 5) reported to relevant decision-makers, where they are supposed to be used for future decision-making (Van Dooren, Bouckaert & Halligan, 2010: 25).

An important part of performance management is the active use of performance information, which is why van Dooren, Bouckaert & Halligan (2010: 30) defines performance management, as: "*a type of management that incorporates and uses performance information for decision making*". The main argument is here that unless the performance information is used actively, the collection of data will probably not lead to improved performance.

The literature presents a range of different uses of performance information, indicating that it may serve many functions. Moynihan (2009) distinguishes between purposeful, passive, political and perverse use. In this study we focus solely on the purposeful uses of performance information, which includes using performance information to improve services through better-informed decisions, goal-based learning, controlling, evaluating or sanctioning and rewarding. Behn (2003) presents a categorization of eight purposes of measuring performance - to evaluate, control, budget, motivate, celebrate, learn, and improve. Most of these fall under purposeful uses. According to Behn (2003) are the first seven purposes means for achieving improvement. Similarly, Van Dooren, Bouckaert and Halligan (2010) present three purposeful uses of performance information; 1) learning; 2) steering and control; and 3) to give account. As it appears learning is just one of many uses presented in the literature. We argue, however, that learning must be the primary use if the purpose is to achieve improvement as stated by Behn (2003).

When it comes to *learning* the literature is also rich of theoretical conceptions (e.g. Kolb, 1984; Schilling & Kluge, 2009; Weiss, 1990; Argyris & Schön, 1996; Huber, 1991; Fiol & Lyles, 1985). Historically it has been debated what constitutes organizational learning - a change in cognition or a change in behavior, and whether organizational learning is seen as a process or as an outcome. We believe that it makes sense to use a broader definition of organizational learning that includes both changes in cognitive map and expressed behavior.

In this study we argue that organizational learning comes from the ability of organizational actors to relate experience and information to routines and problems (Argyris & Schön, 1996: 16). We see organizational learning as the processing of information, which changes an entity's range of potential behavior (Huber, 1991), and define organizational learning as "the development of knowledge held by organizational members, that is being accepted as knowledge and is applicable in organizational activities, therewith implying a (potential) change in those activities" (Berends, Boersma & Weggeman, 2003: 1042). Although many define organizational learning as incorporating only changes that result from a learning process, we argue, similarly to Askim, Johnsen and Christophersen (2008: 300), that organizational learning should be viewed broader, as the result of the use of performance information just as well may be a decision to maintain

the status quo.

One driver of organizational learning may be performance information systems. Huber (1991) explicitly specifies the role of information systems as primarily serving organizational memory. Performance information systems may, however, also serve other important roles in order to stimulate organizational learning such as the distribution and interpretation of the information in the organization. Thus, Moynihan (2005) argues that performance information systems represent an organizational learning mechanism in public organizations. It requires, however, that the information that is gathered and processed is also actively used learning-oriented. Therefore, we will now look into the literature on factors enabling or constraining the use of performance information with a certain focus on learning-oriented use of performance information.

Factors driving learning-oriented use of performance information

In recent years more research on the use of performance information has emerged, usually relying on self-reported survey data (e.g. de Lancer Julnes & Holzer, 2001; Moynihan & Pandey, 2010; Askim, Johnsen & Christophersen, 2008; Melkers & Willoughby, 2005; Dull, 2009; Moynihan & Ingraham, 2004; Moynihan & Hawes, 2012; Yang & Hsieh, 2007; Johansson & Siverbo, 2009). These studies have increased our knowledge of factors driving performance information use but have not resulted in an overarching theory of the use of performance information (Moynihan & Pandey, 2010: 850).

Kroll (2015) has, however, provided a systematic literature review of factors influencing purposeful performance information use, analyzing 25 empirical studies. This review showed that measurement-system maturity, stakeholder involvement, leadership support, support capacity, innovative culture, and goal clarity are important drivers of performance information use that have shown significant positive effects in several studies. Moreover, the review suggested a range of promising impact factors, including learning routines (forums), user (prosocial) motivation, networking behavior, and political support. These factors were found to be relevant, but more evidence was still required. Finally, the review identified insignificant and inconclusive variables, such as organization size and financial situation or managers' socio-demographics.

Most of the studies included in the systematic literature review, apply, however, a broader focus and a broader dependent variable than this study. They study purposeful use of performance information, rather than learning-oriented use (a sub-dimension of purposeful use). Fewer studies focus narrowly on learning-oriented use of performance information (for exceptions see Askim, Johnsen & Christophersen, 2008; Moynihan & Landuyt, 2009). The study by Askim, Johnsen, and Christophersen (2008) of municipal benchmarking networks in Norway examined network characteristics, administrative factors, political variables, task characteristics, and history dependence finding that factors such as network and administrative characteristics and management and political participation influence learning outcomes. It also indicates that learning from benchmarking is subject to politics. Moynihan and Landuyt (2009) find that the strongest influences on

organizational learning are learning forums, but also mission orientation, decision authority, information systems, and resource adequacy were positively related to improved organizational learning.

On the basis of the literature we will now outline an analytic framework comprising a set of hypotheses about which factors may drive learning-oriented use of performance information. We conceptualize learning-oriented performance information use as organizational behavior in which managers have discretion but are influenced by the organizational context and the formal systems in which they work (Moynihan & Pandey, 2010). We test categories of variables consistent with this conceptualization, incorporating different kinds of organizational factors (performance management related and unrelated).

Learning forums

With the introduction of performance management systems routines for collecting, analyzing and distributing information were created. Organizational routines in which employees seek to examine and discuss information and consider what it implies for subsequent action have, however, been neglected (Moynihan, 2005; Moynihan & Landuyt, 2009). Such routines may be formally established through learning forums taking a variety of forms, such as after-action reviews, benchmarking processes, or other routines in which data is examined within or across organizational entities. These routines create opportunities for managers and employees to reflect on their core processes and related outcomes (Moynihan, 2005; Kroll, 2015). Learning forums ideally occur on a regular basis, are based on a dialogue between key actors, and are focused on improving the organization. The argument is here that organizations with formal procedures for learning are more effective learners and will therefore use performance information in a learning-oriented manner to a larger extent than organizations without formalized routines and forums for examining and discussing information and considering subsequent action.

H₁: Learning forums are positively related to learning-oriented use of performance information.

Support capacity

Another structural component that may be essential in order to increase public managers' learning-oriented use of performance information is adequate support capacity. Support capacity for performance management practices can be defined as the resources, capabilities, and technology available to make performance measurement work, and can be seen as the extent to which an organization has committed resources (time, people, money) to be used in measurement and management of performance (Kroll, 2015). It is argued that the use of performance information is highly dependent on how the performance management systems are adopted, and the support capacity available for performance management practices (e.g. De Lancer Julnes & Holzer, 2001). The same mechanism is expected to matter when it comes to learning-oriented use of performance information. Thus, we hypothesize that investments in capacity for performance management practices such as training employees and giving them performance management skills, devoting resources

to the work with performance management, and providing sufficient technological support may provide a pay-off later on if the information to a further extent is used in a learning-oriented manner.

H₂: Adequate support capacity to make performance measurement work is positively related to learning-oriented use of performance information.

Measurability of tasks and the quality of data

A task-related factor that may affect learning-oriented use of performance information is the measurability of tasks. In the literature it is often argued that differences in performance management practices may be a result of differences in tasks and their measurability. Some organizations have a harder time than others adopting performance measurement practices and using performance information because their tasks are more difficult to measure and hence the performance data available have a different quality (de Bruijn 2007; Wilson, 1989; van Dooren, 2005; Askim, 2015; Kristiansen, 2016; 2017; Moynihan et al., 2010). Consequently, we can expect to find that managers' learning-oriented use of performance information may be enabled or constrained by the measurability of their tasks. Learning-oriented use of performance information may therefore vary between tasks, as some tasks are easier to measure than others. As a result the information derived from the measurement process will be of a better quality and easier to interpret and learn from. Thus, we hypothesize that learning-oriented use of performance information is enabled the easier it is to measure the results of the organizations' efforts and the better the quality of data is.

H₃ Learning-oriented use of performance information is positively related to the measurability of the organizations' tasks and the quality of data.

Innovative culture

Several studies have argued that organizational culture matters – also when it comes to the use of performance information. Managers must want to use performance data if they are to be used. The cultural norms of the organization may enable this demand. Building an organizational culture that is supportive of learning-oriented use of performance information seems therefore to be an important aspect of enhancing a learning-oriented use of performance information. As previous research has defined culture too narrowly in terms of its orientation toward performance information systems, Moynihan & Pandey (2010) encourage research examining the relation between use of performance information and broader cultural concepts. We apply therefore a broader cultural concept arguing that if managers are situated in an environment that rewards innovation and allows them to question existing routines they are more likely to use performance data. Contrary, if they are situated in an environment that emphasizes procedural continuity and warns against risk taking, they may not use performance data to the same extent (Henri, 2006; Quinn & Rohrbaugh, 1981; Moynihan & Pandey, 2010). We therefore hypothesize that when managers are situated in an innovative and developmental cultural environment, they will be encouraged to use performance information in a learning-oriented way.

H₄: An innovative and developmental organizational culture fosters learning-oriented use of performance information.

Figure 1 summarizes our first theoretical model drawing upon some of the variables that previous studies have found significantly related to the use of performance information. We address them, however, more specific to learning-oriented use of performance information.

[Theoretical Model 1 around here – will be presented in the final paper]

Above we have presented hypotheses examining the relation between learning-oriented use of performance information and four factors emphasizing the importance of both structural, tasks and cultural aspects of organizations. We have, however, a special interest in learning forums, as a previous study (Moynihan & Landuyt, 2009) find that having established learning forums have the strongest influence on organizational learning. Moynihan & Landuyt (2009) argue, however, that establishing a learning forum will only have a positive effect if the appropriate cultural traits, such as a willingness to acknowledge error and openness to the views of others are in place. The findings suggest in other words that both structural and cultural approaches are important, and are intertwined with one another. Thus, in the analysis we pay special attention to learning forums, as we want to examine whether the effect of creating learning forums and formalized routines for learning is enhanced if a range of other conditions is in place. We suggest that the effect of a learning forum not only depends on cultural attributes of the organization, but that it may be influenced by several other factors. We argue that the effect of establishing a learning forum may be mediated by the capacity to work with performance management, if the task is measurable, and data are of a good quality.

First, we hypothesize that a positive relation between learning forums and learning-oriented use of performance information is mediated by the extent to which an organization has committed resources (time, people, money) to performance measurement and management practices.

H₅: The positive relation between learning forums and learning-oriented use of performance information is positively mediated by an adequate support capacity

Second, we hypothesize that the positive relation between learning forums and learning-oriented use of performance information is mediated by the measurability of tasks, as some tasks are easier to measure than others, and the information derived from the measurement therefore will be easier to interpret and learn from within the learning forum.

H₆: The positive relation between learning forums and learning-oriented use of performance information is positively mediated by the measurability of tasks.

Finally, we test the argument of Moynihan & Landuyt (2009) that the success of learning forums will depend on the cultural attributes of the organization. If learning forums are established in a culture that is purpose driven, encourages the open sharing of information, supports the presentation of different perspectives, and examines errors to solve problems rather than to allocate blame then learning-oriented use of performance information will be enabled (Moynihan 2005). If such a culture does not exist, the distribution of performance information may lead to defensive reactions rather than organizational learning. Thus, we hypothesize that the effect of establishing learning forums will depend greatly on the organization culture, as having an innovative culture mediates the effect of a learning forum.

H₇: The positive relation between learning forums and learning-oriented use of performance information is positively mediated by an innovative organizational culture

Figure 2 summarizes our second theoretical model, showing how the effect of creating learning forums and formalized routines for learning may be enhanced through a range of other conditions.

[Theoretical Model 2 around here – will be presented in the final paper]

Research Design and Methods

The study is based on survey responses from public managers (at level 3) in Danish municipalities. The survey was sent to 1151 public managers in Danish municipalities in April 2015. Managers at level three in Danish municipalities are managers that refer directly to a director. The survey was sent to the managers' individual e-mail addresses, and was followed up by two reminders. 464 respondents completed the survey, a response rate of 40.3%. The respondents consisted of 44.4 percent Female vs. 55.6 percent male.

Appendix 1 provides additional detail on the survey items and Cronbach alphas for indexes. Descriptive statistics and a correlation matrix are provided in table 1

Our operationalization of the dependent variable, learning-oriented use of performance information, involves both a dimension focusing on discussion and interpretation of the information with the purpose of improving performance, acknowledging that not all learning will result in organizational change, and a more action-oriented dimension focusing on adjustment and changes of the organization's work and approach on the basis of the information. We measure learning-oriented use of performance information by three survey items that together form the dependent variable (see appendix

for a detailed presentation of the survey items). We argue that an organizational entity has used performance information learning-based if performance information is discussed and interpreted in an organizational entity with the purpose of improving, or if performance information is used as a basis for adjustment or changes of the organizational entity's procedures, methods or approaches to their work. The survey items are based on a likert scale from 1-5. Each question is equally weighted in the indexes.

In order to isolate the influence of our independent variables on learning-oriented use of performance information, we include a number of other organizational factors as statistical controls in our analyses. As presented in the literature review there is evidence that political support and leadership support for performance measurement practices fosters performance information use. Similarly, a unified organizational culture and the experience with performance management practices may also foster use of performance information and especially learning-oriented use of performance information, which is why we include these variables as controls in our model.

General political support and top-level management support is a good measure whereby managers can assess whether performance management practices are taken seriously in their organization and whether it is necessary for them to take on the effort to participate and devote their scarce resources accordingly (Kroll, 2015). Having a unified culture is argued to be important for learning-oriented use of performance information as employees within the organization have a common understanding of mission and norms that makes them in a stronger position to understand the broader system of which they are a part, place their actions in this broader context, and to learn in a way that contributes to the whole (Moynihan & Hawes, 2012). However, there is also a risk that an overly unified culture may lead to groupthink, where organizational norms prevent members from questioning poor ideas (Janis, 1982). Finally, experiences with performance management practices may also foster use of performance information. The longer you have worked with performance management the more you may have learnt how to design and use the system in a more sophisticated manner, and the more the system has become institutionalized as a natural part of the organization (Selznick, 1957), which may foster learning-oriented use of performance information.

As with most of the previous research on the use of performance information, we rely on self-reported indicators. Few studies have, however, focused on learning-oriented use of performance information using quantitative data sets, particularly in public settings. The survey approach allow us to come closer to an understanding of which factors that are associated with public managers perceptions of whether they use performance information in a learning-oriented manner. As we focus on the managers' use of performance information, we focus on individual estimates of their own use, rather than individual perceptions of wider group use. The survey approach brings, however, limitations, in particular the potential for an upward response bias. Further, it can be difficult to capture many of the processes related to learning-oriented use of performance information through a survey approach.

Strategy for the analyses

A multiple linear regression model (OLS) in three steps was used to test whether learning forums, support capacity, measurability, innovative culture and the controls impact on the managers learning oriented use of information. Prior to our analyses, we tested the data for violations of the key assumptions behind regressions. The relations were found adequately linear. In addition, all measures were analyzed for outliers. Furthermore, we tested for multicollinearity and heteroscedasticity and found no problems in this regard. Missing data were excluded from the analyses. Many respondents did not answer all of the survey questions, so we carefully examined all the indexes to see if there were any systematic imbalances in the way the missing answer was divided. This was not the case.

To test for mediating relationships, we used conditional process analyses (Hayes, 2013). Conditional process analyses built on a regression approach. There are several different possible analytical methods to test process models with mediating effects. The most commonly used method is 'the causal step analysis' (Baron & Kenny, 1986) because it is simple. However, this method has several significant limitations. Most important, the 'causal step' approach does not provide a precise estimate of the mediating effect (Hayes 2009; see also MacKinnon 2008: 342ff; Preacher et al., 2007: 189). Other tests (such as Sobel's test) are based on assumptions that the mediating variable is normally distributed, while research has shown that this is often not the case. Instead standard errors is very often biased in mediation analyzes, increasing the risk of committing a type-1 error (MacKinnon et al. 2007: 601; Hayes 2009). The bootstrap method has the advantage that it does not rely on these assumptions of normally distributed standard errors. The method is based on a re-sampling of the original data population, thereby generating an empirical representation of the distribution of the mediating effects. Hence, the bootstrap analysis provides the most accurate estimates of the mediation effect (Hayes 2009, MacKinnon et al., 2007, MacKinnon 2008). MacKinnon furthermore points out that the bootstrap method is especially advantageous if you want to test models that contain more than one mediating variable, as is the case in the following analysis (MacKinnon 2008: 344). It has been chosen to work with 10.000 re-samples as the basis for the analysis in this paper.

Results

Table 1 presents the descriptive statistics for the included variables.

[Table 1 will be presented here in the final paper]

Table 1 displays a large number of significant correlations between the dependent and independent variables and the directions of these relationships are as expected, thus lending support to our theoretical arguments. However, to determine whether our hypotheses are supported we undertook a multiple regression. We estimated three models. Model 1 enters the controls, while model 2 focus on the impact of learning forums on the managers learning-oriented use of performance information. Model 3 finally adds support capacity, measurability of tasks and a measure for innovative culture

in the organization. In the models we report both the unstandardized coefficients and model the standardized coefficients.

[Table 2 OLS about here]

The results are presented in table 2. If we look at model 1, we see that only one of the controls – the degree of top-level management attention and support – are related to the managers' learning-oriented use of performance information. This relationship disappears, however, when learning forums is introduced in the analyses. Model 2 shows that learning forums as expected in hypothesis 1 is positive and highly significant correlated with the managers' learning-oriented use of performance information. This positive and significant relationship is stable in model 3, when support capacity, measurability and innovative culture are entered into the regression. As expected in hypothesis 2 support capacity is positively and significant related to learning-oriented use of performance information. Measurability is also positively related to learning-oriented use of performance information, but only on a weak significant level ($p < 0.1$). Therefore this result only lends weak support to hypothesis 3. Finally no significant relationship is found with regard to innovative culture, and hypothesis 4 is therefore not supported in this dataset. If we look at the standardized coefficients in model 3, they show that learning forum is the most important predictor of learning-oriented use of performance information in the model. However, the variables together only explain 16.9 percent of the variance in the index for learning-oriented use of performance information, which indicate that other factors are important for managers learning oriented use of performance information as well (King, 1986).

To determine whether the relationship between learning forums and managers learning oriented use of performance information are mediated by support capacity, measurability and innovative culture we also conducted a mediation analysis. Table 3 display the analysis and shows that the overall model is highly significant, the total effect is 0.258 and 12.4 percent of the variance in the dependent variable is explained by the model¹. As in the multiple regression analysis learning forums has a significant and positive direct effect on learning-oriented use of performance information (in this model the direct effect is 0.202***). The specific causal pathways in the right side of the models show us, that learnings forums is significant and positively related to support capacity and innovative culture, but not significantly related to measurability. Support capacity is highly significant and positively related to learning oriented use of performance information (the left side of the model), while measurability is only weakly related to learning oriented use of performance information (on a $p < 0.1$ significant level), and innovative culture is not significantly related to learning oriented use of performance information. This means that only support capacity has a mediating effect in the relationship between learning forums and the managers' learning oriented use of performance information (as displayed by the two positive bootstrap results in the box in the middle of the model). Support capacity positively mediates the relationship, meaning that

¹ The difference in N between the OLS regression (N = 282) and the process analysis (N = 284) is caused by the re-sampling technique in the mediation analysis.

the effect of learning forums on learning oriented use of performance information is strengthened the higher degree of support capacity in the organization/department. However, these results also indicate that several of the independent factors in our first analysis (the multiple regression analysis) are correlating in different ways, hence that more complicated causal mechanisms between learning forums, support capacity, measurability, innovative culture and learning-oriented use of performance information are at stake. We will discuss these findings further in the next section

Discussion and Conclusions

The purpose of the paper was to add to the empirical knowledge on factors that drive learning-oriented use of performance information paying special interest to the establishment of learning forums.

The multiple regression analysis showed that both structural and task-related aspects of organization are positively related to learning-oriented use of performance information. Similarly to Moynihan and Landuyt (2009) and Moynihan (2005), the analysis showed that organizational routines for examining and discussing information and considering its consequences for subsequent action through the creation of learning forums are positively related to learning-oriented use of performance information. Thus, the establishment of formal procedures for learning seems to enable learning-oriented use of performance information. Further, in line with Berman & Wang, 2000, de Lancer Julnes & Holzer, 2001, Moynihan & Hawes, 2012 and Yang & Hsieh, 2007, we found that support capacity is positively related to learning-oriented use of performance information. Thus, adequate resources, capabilities, and technology to make performance management work, seem to enable learning-oriented use of performance information. Finally, the multiple regression analysis showed that the measurability of tasks and the quality of data is significantly positively related to learning-oriented use of performance information. The measurability of organization's tasks and the quality of data seem to enable manager's learning-oriented use of performance information, probably as the information derived from the measurement process is of a better quality and easier to interpret and learn from.

Contrary to previous studies by Johansson & Siverbo (2009), Moynihan (2005), Moynihan & Pandey (2010) and Moynihan, Pandey, & Wright (2012) we did not find a significantly positively relation between an organizational culture that embraces openness to change and values learning from mistakes and manager's learning-oriented use of performance information.

In his meta-study Kroll (2015) argued that more evidence was still required on the impact of learning forums. Thus, in the analysis we paid special attention to learning forums with the purpose of examining whether the effect of creating learning forums and formalized routines for learning was positively mediated if the organization builds capacity to work with performance management, if the organizations tasks are measurable and data are of a good quality, and if the organization is characterized by a culture in which a willingness to acknowledge error and openness to the views of others are in place. The analysis showed, that having adequate resources, capabilities, and technology to make performance man-

agement work significantly positively mediate the effect of having created learning forums significantly. The study therefore adds to our knowledge on the impact of establishing learning forums showing a direct positive effect on learning-oriented use of performance information and by showing how the effect of learning forums on learning-oriented use of performance information is positively mediated by support capacity. Contrary, we do not find that the effects of learning forums on learning-oriented use of performance information are positively mediated by the measurability of tasks and an innovative culture. This is somewhat surprising and have to be further examined in future research for instance through case studies. Moreover, we found that several of the independent factors in the multiple regression analysis were correlating in different interesting ways, which also has to be studied through further examination of the causal mechanisms between our independent variables, our control variables and learning-oriented use of performance information.

Then what are the practical implications of our findings? Here, we focus especially on the role of public managers, as the findings suggest that public managers can actively affect some aspects of the organization in order to enable learning-oriented use of performance information. First, public managers can establish formal procedures for learning through learning forums in which performance information is examined, discussed and subsequent action is considered. Second, public managers can invest in building performance management capacity through the training of employees, devoting resources to the work with performance management, and providing sufficient technological support. The measurability of tasks is given by the certain tasks an organization carries out, and is much more difficult for public managers to manage. However, despite differences in the measurability of tasks across organizations, public managers may be able to enhance the quality of data given the measurability of the tasks e.g. through a careful selection of meaningful performance indicators and by further sophisticating the selected performance indicators, data sources and measurement routines with the purpose of increasing the validity, reliability and credibility of data through a learning process.

The research design and the methodology we have applied result, however, in a number of limitations. The usual caveats and flaws of cross-sectional survey data apply. In particular there is a potential for an upward response bias. Further, it can be difficult to capture many of the processes related to learning-oriented use of performance information through a survey approach. Finally, there is a risk that common source bias inflates the relationship between independent variables and the dependent variable. However, a survey-based approach seems to be required when testing such relationships, capturing a large number of comparable individual responses on items that are difficult to externally observe e.g. organizational culture and public manager's learning-oriented use of performance information.

Appendix 1: Variables and survey items

Variables	Survey items
<i>Dependent</i>	
Learning-oriented use of performance information Chronbachs alpha: 0.909	To what extent have you within the following year used performance information: <ul style="list-style-type: none"> - To discuss challenges with the service my entity delivers and potential improvements of this? - To adjust professional methods, approaches and perspectives for the activities in my entity? - To adjust internal processes and professional work systems? (1=not at all 2= to a minor degree; 3=to some degree; 4=to a large degree; 5=to a very large degree).
<i>Independent</i>	
Learning forums Chronbachs alpha: 0.644	<ul style="list-style-type: none"> - How often do you discuss the results of your entity's efforts with your entity? (1=never; 2= seldom once or twice per year; 3=once in a while (once every quarter); 4=Often (once a month); 5=very often (once a week or more often). - How often do you discuss the results of your entity's results with the managing directors? (1=never; 2= seldom once or twice per year; 3=once in a while (once every quarter); 4=Often (once a month); 5=very often (once a week or more often). <p>To what extent has one or several of the employees in your entity participated in:</p> <ul style="list-style-type: none"> - Network or partnership meetings between municipalities in which you focused on performance management - Internal meetings focusing on performance management in my entity or across entities within the municipality (1=not at all 2= to a minor degree; 3=to some degree; 4=to a large degree; 5=to a very large degree).
Support capacity Chronbachs alpha 0.778	To what extent do you think your entity is sufficiently supported in order to collect, analyze and distribute the results of your entity's efforts related to: <ul style="list-style-type: none"> - Financial resources (work hours devoted to performance management)? - Human resources (employees with knowledge and skills to the work with performance management)? - IT and technological resources (1=not at all 2= to a minor degree; 3=to some degree; 4=to a large degree; 5=to a very large degree).
Measurability of tasks Chronbachs alpha: 0.678)	<ul style="list-style-type: none"> - Our indicators are measurable (1=to a very low degree 2= to a minor degree; 3=to some degree; 4=to a large degree; 5=to a very large degree). - There is a clear connection between the objective and the indicators in the performance management system (1=to a very low degree 2= to a minor degree; 3=to some degree; 4=to a large degree; 5=to a very large degree). - It is difficult to find countable measures that cover the results of our primary tasks (5=not at all 4= to a minor degree; 3=to some degree; 2=to a large degree; 1=to a very large degree) (reversed). - It is difficult to identify whether the results of my entity are caused by our activities or by other external factors (5=not at all 4= to a minor degree; 3=to some degree; 2=to a large degree; 1=to a very large degree) (reversed). - We miss relevant performance indicators in order to get a more accurate picture of our objectives (5=to a very low degree 4= to a minor degree; 3=to some degree; 2=to a large degree; 1=to a very large degree) (reversed).
Innovative culture	- My entity is dynamic and entrepreneurial. The employees are willing to take chances and make mistakes in

Chronbachs alpha 0.792	<p>their work (1=not at all 2= to a minor degree; 3=to some degree; 4=to a large degree; 5=to a very large degree).</p> <ul style="list-style-type: none"> - It is our engagement to work innovative and create new solutions that ties my entity together (1=not at all 2= to a minor degree; 3=to some degree; 4=to a large degree; 5=to a very large degree).
<i>Control</i>	
Political support and involvement Chronbachs alpha 0.799	<ul style="list-style-type: none"> - There is a political interest in information on my entity's performance (1=not at all 2= to a minor degree; 3=to some degree; 4=to a large degree; 5=to a very large degree). - The politicians are involved in defining my entity's performance objectives (1=not at all 2= to a minor degree; 3=to some degree; 4=to a large degree; 5=to a very large degree).
Top-level management attention and support Chronbachs alpha 0.905	<ul style="list-style-type: none"> - Top-level management give performance management managerial attention (1=not at all 2= to a minor degree; 3=to some degree; 4=to a large degree; 5=to a very large degree). - Top-level management promote working with performance management (1=not at all 2= to a minor degree; 3=to some degree; 4=to a large degree; 5=to a very large degree).
Unified culture Chronbachs alpha 0.634	<ul style="list-style-type: none"> - My entity is characterized by a shared professional understanding and tradition across employees and managers (1=not at all 2= to a minor degree; 3=to some degree; 4=to a large degree; 5=to a very large degree). - You seldom experience disagreements about professional methods and processes in my entity (1=not at all 2= to a minor degree; 3=to some degree; 4=to a large degree; 5=to a very large degree).
Performance measurement experience	<ul style="list-style-type: none"> - How many years have a systematic performance management practice existed in your entity (1=0 years 2= 1-2 years; 3=3-4 years; 4=5-6 years; 5=more than 6 years).

Respondents also have the opportunity to choose "don't know" Such responses are excluded from the scale. All indexes are converted to a 1-5 scale.

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Table 2

Dependent variable: Learning oriented use of performance information	Model 1		Model 2		Model 3	
		Beta		Beta		Beta
Unified culture	0.095	0.074	0.091	0.071	0.056	0.044
Top-level management attention and support	0.112**	0.147**	0.061	0.080	0.025	0.033
Political support and involvement	0.085	0.110	0.060	0.078	0.058	0.075
Performance measurement experience	0.070	0.113	0.067	0.108	0.025	0.040
Learning forums			0.258***	0.227***	0.202***	0.178***
Support capacity					0.181***	0.173***
Measurability of tasks					0.148*	0.108*
Innovative culture					0.047	0.048
n = 282 * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$	$p = 0.000$ $R^2 = 0.080$		$p = 0.000$ $R^2 = 0.124$ $R^2 \text{ change} = 0.044$ ***		$p = 0.000$ $R^2 = 0.169$ $R^2 \text{ change} = 0.045$ ***	

Learning Forums	0.163** SE (0.063)
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Support capacity

Support capacity	0.181*** SE (0.067)
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Learning Forums	0.075 SE (0.052)
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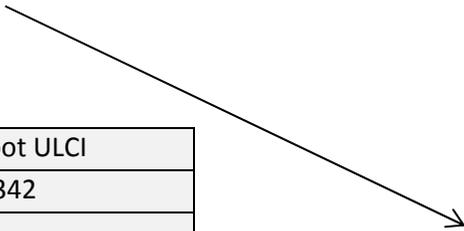
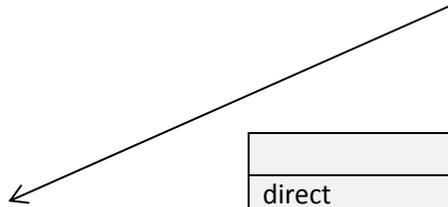
Measurability

Measurability	0.148* SE (0.081)
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Learning Forums	0.322*** SE (0.069)
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Innovative Culture

Innovative Culture	0.047 (SE (0.071))
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	effect	Boot LLCI	Boot ULCI
direct	0.202 (0.071)	0.062	0.342
indirect			
Support capacity	0.029 (0.019)	0.003	0.079
Measurability	0.011 (0.012)	-0.003	0.046
Innovative Culture	0.015 (0.024)	-0.025	0.072

Learning Forums

Learning-oriented use of performance information

Total model P = 0.000
N =284
10.000 re-samples

	effect	SE	R square
Total	0.258***	(0.069)	0.124***
Controls			
Unified Culture	0.091	(0.074)	
Mang att	0.061	(0.051)	
Pol supp	0.060	(0.050)	
Per Exp	0.067*	(0.036)	