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Performance management in action: a configurational analysis of the drivers of the purposeful use of performance information

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Abstract

Purpose – The article explores which configurations of organizational and individual conditions support the purposeful use of performance information in the public sector. Prior research has predominantly focused on the effects of individual factors without paying as much attention to how these factors interact to influence public managers' attitudes to integrating performance information into their decision-making.

Design/methodology/approach – The study employs a fuzzy-set qualitative comparative analysis (fs-QCA) to examine the different combinations of organizational and individual drivers that facilitate purposeful performance information use.

Findings – Goal clarity is a necessary but insufficient condition for purposeful information use. It needs to be complemented by a mature performance management system, public managers with prosocial motivation who engage in extra-role behaviours within a non-innovative organizational culture, or a developmental culture that motivates managers who are unaware of the social impact generated by their work.

Research limitations/implications – The case selection does not allow for direct generalizations. Future studies could replicate the configurational analysis in different countries and sectors and introduce additional environmental, organizational, and individual conditions.

Practical implications – The study suggests the need to integrate actions that support the purposeful use of performance information and define clear departmental goals. Although the latter is a necessary condition, it needs to be supported by other organizational and individual factors.

Originality/value – The study deepens the theory of the drivers of purposeful performance information use in the public sector by adopting a configurational approach and exploring how organizational and individual conditions interact to foster information use.

Keywords Performance management, Performance information use, Qualitative comparative analysis, Goal clarity, Prosocial motivation, Developmental culture

Paper type Research paper

Introduction

Performance management practices have become pervasive in numerous countries and across different levels of government (Bouckaert and Halligan, 2008), demonstrating a

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positive correlation with public performance (Verbeeten, 2008). However, the simple collection and integration of data into management systems are insufficient to ensure the success of performance-oriented reforms (Van Dooren *et al.*, 2015; Melo and Mota, 2020). Performance management systems can effectively support better results and greater accountability only if performance information is actually used by public decision-makers (Moynihan, 2023; Zahra and Bouckaert, 2021). More specifically, "if we want to study the successes and failures of performance movements, we have to study the use of performance information" (Van Dooren, 2008, p. 22), which refers to the methodical collection of information, highlighting the results and impacts of public services (Pollitt, 2006).

Public managers leverage performance information for various purposes. However, their objectives may not consistently prioritize the improvement of public services (Moynihan, 2009). For instance, public managers may use performance information passively to fulfil formal requirements (Moynihan *et al.*, 2012a), manipulate data to hide lower-than-expected results (Choi and Woo, 2022), or leverage performance information for external legitimation and resource advocacy (Nitzl *et al.*, 2019). In contrast to these uses, public managers can opt to fully harness the managerial potential of the information generated by performance management systems. This involves purposefully using performance information to make informed decisions related to changes in service or program design, resource allocations, organizational learning, and personnel management, as well as decisions regarding reward and sanctioning systems, all aimed at improving public performance (Moynihan, 2009).

The academic literature extensively investigates the potential determinants of the purposeful use of performance information in public administrations**,** categorizing them into individual, organizational, and environmental factors (Kroll, 2015). At the individual level, public managers are more likely to use performance information when they are motivated by performance goals and the desire to generate social value (Kroll and Vogel, 2014). Beyond individual factors, organizations can facilitate the use of performance information by providing managers with a mature performance management system (Ammons and Rivenbark, 2008), and cultivating a performance-oriented work environment (Rajala and Sinervo, 2021). Furthermore, the external environment can impede managerial information use if stakeholders and politicians fail to endorse performance measures (Ho, 2006).

This study contributes to understanding the determinants of purposeful performance information use by employing a configurational approach. While previous studies have analysed correlations between each factor and the use of performance information (e.g. Taylor, 2011), this paper analyses how different conditions can interact to support public managers in using performance information for informed decisions. Analysing the interplay of multiple factors has been suggested as a crucial research strategy for the study of performance information use (Kroll, 2015) and, more generally, for social phenomena (Merton, 1968). The following research question is therefore addressed: what different combinations of organizational and individual conditions facilitate the purposeful use of performance information among public managers?

The next section provides the theoretical background, and the third section explores the case selection, data collection and methodology, including the operationalization of outcomes and causal conditions. The fourth section presents the empirical results, while the final sections discuss the main findings and draw conclusions, emphasizing the limitations of the study and the primary contribution to public management scholarship and practice.

Theoretical background

Use of performance information

Performance management in public-sector organizations involves a multi-step cycle that goes beyond the design and implementation of technically sound performance measurement

systems (van Helden *et al.*, 2012). The effectiveness of performance management hinges on whether the information produced by performance measurement systems is utilized by public managers (De Lancer Julnes and Holzer, 2001). Performance measurement becomes performance management only when performance information is used by public managers and guides their decision-making (Johansen *et al.*, 2018; Ammons *et al.*, 2013).

Performance information can be used in different ways, and not all these approaches result in improved performance (Moynihan, 2009). For instance, individuals who perceive performance information as a means of showcasing their achievements may show the information in a favourable light to emphasise these results (*political use*). This phenomenon is particularly prominent in countries characterized by high political conflict and low accountability, where performance information is viewed as a tool for advocacy in the political environment (Moynihan, 2008). Conversely, in contexts where managers face pressure to optimize performance, they may engage in fabricating data, altering goals or manipulating measures (*perverse use*) (Benaine, 2020). In practice, performance information can be used through a broad variety of tactics such as neglecting difficult-to-serve users, disregarding important unmeasured goals, or changing objectives to avoid unfavourable longitudinal comparisons (Courty and Marschke, 2004). This perverse use of performance information is popular in administrative systems where employees can influence the selection and measurement of performance goals by which they are assessed (Moynihan, 2023). More frequently, individuals may show disinterest in performance management systems and have indifferent reactions to their implementation, engaging only in the essential tasks required for the formal generation of performance information (*passive use*) (Radin, 2006), being driven by the need for compliance rather than improving public service effectiveness (McAdam *et al.*, 2011). This compliance-based use of performance information has been observed worldwide; however, it is particularly common in hierarchical cultures where performance management reforms are viewed as temporary due to past failures (Moynihan, 2023), and individuals either lack incentives to use performance information or face no consequences for not using it.

Overall, the effectiveness of performance management systems is undermined by the political, perverse, and passive use of performance information. Only meaningful performance information used to guide management decisions can enhance performance. Moynihan (2009) introduces the concept of *purposeful* performance information use, which is when public employees leverage performance information to make better strategic decisions for resource allocation, learning and personnel decisions, and reward and sanctioning systems with the ultimate goal of improving performance. Similar categorizations of performance information uses are provided by Van Dooren *et al.* (2015) and Behn (2003).

This research investigates the combinations of conditions that enable public managers to make purposeful use of performance information, which is widely recognized as consistent with the intended outcomes of performance-oriented reforms in the public sector (Kroll, 2015).

Drivers of purposeful performance information use

In the context of local governments, Melkers and Willoughby (2005) provide empirical evidence of the impact of four drivers on different uses of performance information: community characteristics, organizational culture, maturity of the performance management system, and respondents' characteristics, respectively. The effective use of performance information may depend on the context in which public managers work. More supportive and challenging environments may encourage public administrators to use positive or negative performance information. Additionally, the interest in performance results of external stakeholders can push public managers to regularly monitor performance data and use the related information to improve public services (Ho, 2006), and influence politicians to accept the actual performance results achieved (Yang and Hsieh, 2007).

Organizational climate and culture can also affect whether public managers feel empowered to use performance information for decision-making. A suitable organizational culture is created when taking responsibility for using performance results is encouraged, individual mistakes are tolerated to promote innovation, and both mission and goals are clearly stated, recognized and accepted. In addition, work outcomes are collectively discussed to find shared solutions (Moynihan, 2005; Moynihan *et al.*, 2012b). A structured performance management system that provides timely information to address public managers' needs, as well as leadership and organizational support during the performance cycle, is a significant precondition for the effective use of performance information (De Lancer Julnes and Holzer, 2001).

Ten years after the classification proposed by Melkers and Willoughby (2005), Kroll provided a systematic literature review that classified the antecedents of purposeful performance information uses into four main categories: environmental, organizational (related and unrelated to performance management), and individual (Kroll, 2015). This categorization is aligned with previous contributions (Kroll and Vogel, 2014; Moynihan and Pandey, 2010) that explore how information use is affected by the external environment, the characteristics of the organization and the performance management system, and those of the users of the performance information, which are expressed in terms of socio-demographic elements and motivational and leadership profiles.

Many factors have been investigated in the extant literature; however, not all of them emerge as essential triggers of information use. This article thus concentrates on those factors identified by Kroll (2015) as important drivers of the purposeful use of performance information, specifically considering developmental culture, goal clarity, and the maturity of the performance management system. We also include the prosocial motivation of managers, since it is recognized as a promising impact factor and has been suggested as a subject of future research on performance information use (Kroll, 2015).

Several studies have investigated the correlational effects of individual factors on performance information use within the context of local government, with most reporting positive outcomes (Rivenbark *et al.*, 2019). The originality of our research is twofold. First, we analyse the combined effect generated by multiple configurations of conditions leading to purposeful use of performance information. Second, it provides empirical evidence regarding what generates a purposeless use of performance information.

We also adopt an intra-organizational perspective by examining the conditions that leverage the purposeful use of performance information among different organizational sectors but related to the same public administration (an Italian region). The study therefore does not consider environmental drivers, as it focuses on the distinctive organizational and individual conditions that characterize each organizational unit, without considering the broader relationship between the organization as a whole and its external stakeholders. The organizational and individual conditions included in the research are explained in the remaining part of this section.

Goal clarity. Goal clarity can be defined as the extent to which employees acknowledge their responsibilities, tasks and the required behaviours needed to achieve performance objectives (Fürstenberg *et al.*, 2021). As individuals encounter increased goal uncertainty, the connection between performance information and decision-making becomes increasingly unclear (Moynihan, 2005). This ambiguity is typical of public administrations striving to meet the needs of multiple stakeholders by pursuing contradictory and ambiguous goals (Chun and Rainey, 2005). Therefore, a clear representation of organizational goals can facilitate the analysis and evaluation of the achievements, hence enhancing the use of performance information (Kroll, 2015). Specifically, high goal clarity helps public managers understand and achieve critical tasks. Previous empirical research supports the positive relationship between goal clarity and purposeful use of performance information (Moynihan *et al.*, 2012a; Kroll, 2015).

Maturity of performance management systems. The use of performance information in individual decision-making depends on the quality of data and how the information is contextually presented (Jethon and Reichard, 2022). Therefore, public managers seek reliable, understandable, real-time data and consistent measures to support their decisions (Ammons, 2001). They require a clear performance reporting system (Abdel-Maksoud *et al.*, 2015; Kroll and Proeller, 2013) and support from a mature performance management system that provides a range of multiple and different data, aligns reporting with managerial demands, offers benchmarks, and links performance information to strategic goals (Kroll, 2015). In the context of local government, sophisticated performance management systems that provide appropriate measures have been shown to have a positive and significant impact on the use of performance information by local administrators (Dimitrijevska-Markoski and French, 2019).

Developmental culture. A developmental organizational culture is distinguished by its emphasis on traits such as flexibility, creativity, adaptability, and innovation (Zammuto and Krakower, 1991). It therefore differs from cultures that prioritize employee unity (*group*), uniformity and internal efficiency (*formal*), as well as productivity and performance (*result*). Empirical evidence has shown a positive relationship between developmental culture and purposeful performance information use (Moynihan *et al.*, 2012a), since managers are greatly encouraged to use performance information when organizations promote and reward innovation rather than warn against risk-taking (Moynihan and Pandey, 2010). In an environment focused on learning and improving, negative performance information can be considered as the starting point for future development, incentivising the use of information to tackle performance problems and explore alternative solutions (Moynihan *et al.*, 2012a). In such organizational cultures, managers tend to be less self-protecting and defensive, accepting performance weaknesses and using performance information for organizational learning (Moynihan, 2005).

Prosocial motivation. Individual factors such as the willingness, skills and experience of public managers can drive performance information use, even more than the quality of the information provided by performance management systems (Deschamps, 2022). Several pioneering studies have focused on the individual motivational aspects of performance information use and, more specifically, on prosocial motivation, which can be described as the individual desire to benefit other people (Grant, 2008). On the one hand, using performance information to make decisions can generate conflicts by challenging existing routines, which then require an extra effort that not everyone is willing to make (Kroll and Vogel, 2014). On the other, managers who strongly believe in the importance of the public service offered are more likely to be motivated to embrace techniques that enhance its effectiveness (Moynihan *et al.*, 2012a). Moynihan and Pandey (2010) found that managers who possess high public service motivation and recognize the prosocial influence of their job are more inclined to make additional efforts to use performance information.

The combination of drivers. Goal clarity, maturity of the performance management systems, a developmental culture (organizational factors) and prosocial motivation (individual factor) are all recognized as significant drivers of purposeful performance information use. However, these factors do not function independently, but rather collectively shape the decision-making of public managers. Therefore, relying solely on one factor might not be sufficient to promote the purposeful use of information.

Designing sophisticated performance management systems that provide timely and valuable information can be considered a technical prerequisite for purposeful information use that, however, needs to be supported by other factors. As noted by Moynihan and Pandey (2010), ensuring the availability of useful performance information should be balanced with a "demand-side approach" that promotes the norms and values conducive to using such information. Without an organizational culture that encourages and supports innovation and error tolerance, public managers may be hesitant to use performance information for

decision-making purposes. Therefore, the purposeful use of performance information might depend on the combined presence of a developmental culture alongside a mature performance management system.

At the same time, organizational culture is strictly connected with the level of goal clarity. Within a developmental culture, public managers who feel uncertain about which direction to take and how to prioritize performance dimensions (lack of goal clarity) are less motivated to use information (Rainey and Jung, 2015). In contrast, public managers may hesitate to make evidence-based decisions to achieve objectives if they work in environments where mistakes are sanctioned (Weinzimmer and Esken, 2017), even when there is a clear understanding of their goals. Furthermore, the lack of access to information from other sources due to a non-collaborative organizational culture (Bento *et al.*, 2020) can hinder the use of performance information to address increasingly interconnected and multidimensional public problems, even in the case of goal clarity. This suggests that goal clarity and developmental culture might interplay in facilitating the purposeful use of performance information.

The individual characteristics of the users of performance information can significantly shape how organizational conditions influence its use. For instance, the positive effect of goal clarity decreases when it is not considered along with the perceived social impact generated by managerial actions (Moynihan *et al.*, 2012b). Public managers with a clear understanding of their objectives may not be motivated to use performance information for public goals if they are not aligned with broader organizational values (Kim *et al.*, 2023), and if they do not simultaneously perceive how their actions contribute to broader societal impacts.

Within a supportive and tolerant organizational culture, extrinsically motivated public managers can prioritize individual achievements over organizational values that emphasize societal impact, thus underscoring the need to promote prosocial and other oriented behaviours to foster information use (Kroll and Porumbescu, 2019). Public managers who show a low level of prosocial motivation may not recognize the value of using such information to make strategic decisions that benefit others, even when mature performance indicators are available. This thus highlights the importance of combining organizational conditions (such as goal clarity, developmental culture, and maturity of performance management systems) with individual motivational factors to ensure that public managers purposefully use performance information.

The need to investigate the combined effect of multiple drivers (organizational and individual conditions) is addressed using a configurational approach, specifically a qualitative comparative analysis (QCA).

Methodology

Case selection

The study investigates the purposeful use of performance information by head managers of seventeen organizational units operating within the same public administration. The selected administration is an Italian region, which employs 1,666 civil servants, 70 of whom are public managers, with a jurisdiction over a large number of heterogeneous services (e.g. agriculture, tourism, education, economic development, health, social services, and internal support). In this context performance information is thus used by public managers to different extents.

The case study was selected among the twenty regions in Italy due to the advanced degree of maturity of its strategic performance management system. The aim was to expand on the previous studies on Italian local governments specifically focused on municipalities located in northern (Nitzl *et al.*, 2019) and southern regions (Rivenbark *et al.*, 2019). The Italian regulatory system mandates regions to develop and annually update three-year performance plans but allows organizational autonomy in the implementation of performance management systems. This is an intriguing context for studying performance information

use, particularly because research on government performance mostly relies on evidence from Anglo-Saxon and Scandinavian countries, with less attention given to neo-Weberian states (Nitzl *et al.*, 2019).

The selected region is distinguished by the active engagement of its line managers and stakeholders throughout the performance management cycle, as well as a demonstrated ability to effectively measure the impacts. In addition, due to a regulatory change introduced in 2021, the regional performance management plan was included within a broader strategic plan, called the Integrated Plan of Activities and Organization, which links the performance objectives of individual organizational units with the overall regional goals of public value creation.

The organizational chart of the selected region was used to identify the organizational units under analysis that directly report to the top departments. This guarantees the homogeneous comparison of performance information use within organizational units at the same hierarchical level, led by managers with equal roles and responsibilities. The selected cases are organizational units that provide public services to external users, excluding generic staff units such as human resources or finance departments (see Nitzl *et al.*, 2019). Table 1 summarizes the selected cases.

Data collection

The main source of data was an anonymous online survey submitted to all heads of the selected organizational units between November and December 2022. The questionnaire was based on internationally validated scales used to measure conditions and outcomes. All measures were translated into Italian with the support of a professional translator, using both forward and back-translation in line with theoretical recommendations (Eremenco *et al.*, 2005). Through an expert panel, the authors fine-tuned the final version of the questionnaire, readjusting its phrasing to the specificities of the administrative and normative context characterizing the Italian local government. Before submitting the online survey, the head of the performance management sector was interviewed to gather information on the main characteristics of the performance management system and to test the robustness of the questionnaire. Following the collection of survey results, a confirmatory focus group was

Case name	Code	Organizational size
Health care sector	HEA	Medium (10–20 employees)
Agricultural policies sector	AGR	High (20–50 employees)
Soil protection sector	SOI	Medium (10–20 employees)
Social policies sector	SOC	Medium (10–20 employees)
Labour policies sector	LAB	Very high (>50 employees)
Cultural policies sector	CUL	High (20–50 employees)
Civil protection sector	CIV	Low (5–10 employees)
Economic development sector	DEV	Very high (>50 employees)
Energy sector	ENE	Very high (>50 employees)
Public transport sector	PUB	Low (5–10 employees)
Ecology and waste sector	ECO	Low (5–10 employees)
Tourism policies sector	TOU	Low (5–10 employees)
Infrastructure sector	INF	Low (5–10 employees)
Housing policy sector	HOU	Medium (10–20 employees)
Professional training sector	PRO	High (20–50 employees)
Education sector	EDU	Very high (>50 employees)
Tourism project, professions and business sector	TPR	Medium (10–20 employees)

Source(s): Authors own work

Table 1. Selected cases for the fsQCA

conducted with the heads of the organizational units to discuss and validate the results. The participating managers affirmed that the survey responses accurately reflected the characteristics of their organizational units and individual motivations. The consistency of the findings was therefore guaranteed by triangulating different methods (Patton, 1999). The results were drawn from the questionnaires, interviews with the head of the performance management sector, and the focus group. This triangulation of sources strengthened the consistency and credibility of the results, and led to a deeper understanding of the specificities of each case, which is an essential precondition for successfully applying the QCA method (Ragin, 1987).

The configurational model

Many studies have used a broad list of independent factors to study their direct and net effect on purposeful performance information use. In contrast, a configurational analysis is suitable for observing the joint presence (or absence) of a set of given causal conditions that might generate a specific outcome. To determine the configurations of organizational and individual conditions that are sufficient for a purposeful use of performance information, a qualitative comparative analysis (QCA) was employed (Ragin *et al.*, 2006).

In a QCA, the presence or absence of a specific condition and outcome is determined by assigning a membership score to each case. This process is called *calibration* and was based on the results of the survey administered to each organizational unit manager, as validated in the confirmatory focus group. To better explore the complexity of organizational and individual factors, this study used a 4-value fuzzy set QCA (fsQCA), which scales membership scores between 0 and 1, accounting for partial membership in a given set. The threshold-setter function of the software Tosmana was used to define the anchors for calibration based on data distribution. This calibration process was then further explored by explaining to the respondents how the conditions and the outcome were operationalized.

As in previous empirical contributions (e.g. Nitzl *et al.*, 2019; Hammerschmid *et al.*, 2013; Moynihan and Landuyt, 2009), both the conditions and outcome were measured through the perceptions of head managers of the organizational units, using survey items that have already been tested in the context of public administration, measured through a Likert scale (either 5-point or 7-point). The internal consistency and reliability of the proposed scales were tested using Cronbach's alpha, which exhibited higher values than the generally accepted threshold of 0.7. All the conditions and the expected outcome were constructed as the sum of the relevant items.

Outcome: purposeful use of performance information. The purposeful use of performance information was measured as the sum of two items ($\alpha = 0.867$), which were empirically developed and tested in previous academic contributions (Moynihan and Pandey, 2010; Moynihan *et al.*, 2012a, b). Specifically, the manager of each organizational unit was asked the following question: "How much do you agree with the following statements regarding the frequency of use of performance information?", with the responses ranging from 1 (strongly disagree) to 7 (strongly agree) to the following statements: "I regularly use performance information to make decisions" and "My sector regularly compares actual achievements with performance objectives".

Condition 1: goal clarity. Based on the scale proposed by Nitzl *et al.* (2019), managers were asked to evaluate the level of their unit's goal clarity by using a 7-point Likert scale in response to six statements. More specifically, they were asked whether their mission was unequivocal, documented on paper, internally and externally communicated, as well as whether their goals were unambiguously related to the mission, internally consistent, specific, detailed, and stable in the face of political changes. Goal clarity was therefore measured as the sum of the six items presented ($\alpha = 0.747$).

Condition 2: maturity of performance management systems. To calibrate the maturity of the performance management system, managers were asked to rate on a 5-point Likert scale the clarity, appropriateness, timeliness and ease of access of their units' performance measures, and their capacity to meet performance information needs and their link with departmental priorities. Based on these considerations, the maturity of the performance management system was measured as the sum of six items ($\alpha = 0.891$) of the scale empirically tested by Dimitrijevska-Markoski and French (2019) in terms of design adequacy.

Condition 3: developmental culture. The level of developmental culture indicated by managers on the 5-point Likert scale already tested by Moynihan *et al.* (2012a) was used to calibrate this condition. Specifically, developmental culture is the sum of three items ($\alpha = 0.867$), with responses ranging from 1 (strongly disagree) to 5 (strongly agree) to the following statements: "My sector is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks", "A commitment to innovation and development is the glue that holds my department together. There is an emphasis on being the best", and "My department emphasizes growth and acquiring new resources. A readiness to meet new challenges is important".

Condition 4: prosocial motivation. Prosocial motivation was measured as the sum of four items ($\alpha = 0.925$) concerning the degree to which public managers felt that their efforts had a beneficial effect on people's lives. Specifically, through a 7-point Likert scale, respondents were asked about the perceived social impact of their work in terms of making a positive difference to other people's lives (Moynihan *et al.*, 2012a).

Table 2 shows the membership scores assigned to the selected conditions and outcomes (data matrix).

Since both the outcome and the conditions are self-reported measures from a survey questionnaire, common method bias (CMB) could affect the results. To address this issue, the common latent factor method was employed to assess the presence of CMB in the data. The results indicated that the calculated variance was below the commonly accepted threshold,

ID	Code	X1	X2	X3	X4	Y
1	HEA	1.00	0.67	0.33	0.33	0.67
2	AGR	0.67	1.00	1.00	1.00	1.00
3	SOI	0.67	0.00	0.67	0.67	0.33
4	SOC	0.67	0.33	1.00	0.33	1.00
5	LAB	0.00	0.33	0.67	0.67	0.33
6	CUL	1.00	1.00	0.67	1.00	1.00
7	CIV	0.00	0.00	1.00	0.67	0.00
8	DEV	1.00	1.00	0.67	0.67	0.67
9	ENE	0.67	1.00	1.00	1.00	0.67
10	PUB	0.67	0.67	1.00	0.67	0.67
11	ECO	1.00	0.33	0.00	0.67	1.00
12	TOU	0.67	0.67	0.67	0.00	0.67
13	INF	1.00	0.33	1.00	0.67	0.00
14	HOU	1.00	0.67	0.67	1.00	0.67
15	PRO	1.00	1.00	0.67	0.33	1.00
16	EDU	1.00	0.67	1.00	1.00	0.67
17	TPR	1.00	0.67	0.33	1.00	1.00

Note(s): *Conditions*: X1 = high goal clarity; X2 = high maturity of performance management system; X3 = high developmental culture; X4 = high prosocial motivation. *Outcome*: Y = purposeful use of performance information

Source(s): Authors own work

Table 2. Set membership scores for the selected conditions and the outcome

suggesting no significant CMB. This indicates that the data collected were not strongly affected by CMB and strengthens the validity of the findings.

Following the calibration process, fsQCA 4.0 software was run, leading to the configurations of factors (organizational conditions and prosocial motivation) that led to the presence and absence of the outcome investigated (i.e. purposeful use of performance information). The next section shows the findings of this research.

Findings

Analysis of necessary conditions

The analysis of necessary conditions explores whether a particular condition can be considered as a prerequisite for the occurrence or absence of the outcome, i.e. if it registers a consistency score above the minimum threshold of 0.90 (Schneider *et al.*, 2010), and a minimum coverage threshold of at least 0.60 (Mattke *et al.*, 2022) in all instances where the outcome occurs (Fiss, 2007; Ragin *et al.*, 2006). In this study, the presence of one condition (i.e. goal clarity) is deemed necessary for the purposeful use of performance information, since both consistency and coverage exceed the thresholds recommended (see Table 3).

Sufficient configurational paths

The number of configurational paths depends on the number of selected conditions. The configurational model in this research shows four conditions, therefore leading to 16 possible configurations (2^k with k being the number of conditions). fsQCA 4.0 software was used to obtain the *Truth Table* (Table 4), which shows the sets of conditions leading to either the presence or absence of the outcome. The identification of sufficient configurations of conditions requires both consistency and frequency parameters to be met. The consistency threshold was set at 0.80 (Ragin, 2009), which is higher than the minimum recommended value of 0.75 (Mattke *et al.*, 2022), while the frequency threshold was set at 1, meaning that at least one case had to show the solution found (Verhoeven, 2016). To test the robustness of the results, "one should test parameters that are as different as possible, but within conceptually plausible ranges" (Oana and Schneider, 2024, p. 75). Accordingly, several changes in the consistency thresholds were tested with no alterations to the solutions identified, proving the robustness of the results.

To present the results, the notation system introduced by Ragin and Fiss (2008) was adopted, where a black circle (●) represents the presence of a condition, a crossed-out circle (⊗) indicates the absence of a condition, and a blank space signifies that the condition is irrelevant to the outcome as its presence or absence does not impact the result. Table 5 presents the complex, intermediate and parsimonious solutions emerging from the fsQCA

Table 3. Overview of necessary conditions

Conditions tested	Presence of outcome variable		Absence of outcome variable	
	Consistency	Coverage	Consistency	Coverage
Goal clarity	*0.912775*	*0.795699*	0.704425	0.305684
~Goal clarity	0.203524	0.580402	0.529204	0.751256
Maturity of PMS	0.823789	0.904255	0.525664	0.287234
~Maturity of PMS	0.350661	0.597598	0.824779	0.699700
Developmental culture	0.764758	0.702834	1.000000	0.457490
~Developmental culture	0.409692	1.000000	0.350442	0.425806
Prosocial motivation	0.763877	0.742294	0.824779	0.398973
~Prosocial motivation	0.381498	0.813910	0.467257	0.496241

Source(s): Authors own work

X1	X2	X3	X4	N of cases	Y	Raw consistency	PRI consistency	Cases
1	1	0	0	1	1	1.000	1.000	1
1	0	0	1	1	1	1.000	1.000	11
1	1	0	1	1	1	1.000	1.000	17
1	1	1	1	7	1	0.948	0.924	2, 6, 8, 9, 10, 14, 16
1	1	1	0	2	1	0.890	0.802	12, 15
1	0	1	0	1	1	0.858	0.670	4
1	0	1	1	2	0	0.698	0.395	3, 13
0	0	1	1	2	0	0.567	0.246	5, 7
0	0	0	0	0	R			
0	0	1	0	0	R			
1	0	0	0	0	R			
0	1	0	0	0	R			
0	1	1	0	0	R			
0	0	0	1	0	R			
0	1	0	1	0	R			
0	1	1	1	0	R			

Note(s): Raw consistency can be defined as the proportion of cases in each truth table row that displays the outcome while PRI consistency and SYM consistency are alternative measures of consistency. Logical remainders were not observed and were coded with R
Source(s): Authors own work

Table 4.
Truth table – configurations and distribution of cases with logical remainders

	Solutions								
	Complex			Intermediate			Parsimonious		
Conditions	1	2	3	1	2	3	1	2	3
Goal clarity	●	●	●	●	●	●			
Maturity of PM system	●			●					●
Developmental culture		●	⊗		●	⊗		⊗	
Prosocial motivation		⊗	●		⊗	●	⊗		
Number of cases	1, 2, 6, 8 9, 10, 12, 14, 15, 16, 17	4, 12 15	11, 17	1, 2, 6, 8, 9, 10, 12, 14, 15, 16, 17	4, 12, 15	11, 17	1, 4, 12, 15	11, 1, 17	1, 2, 6, 8, 9, 10, 12, 14, 15 16, 17
Consistency	0.93	0.91	1.00	0.93	0.91	1.00	0.81	1.00	0.90
Raw coverage	0.77	0.29	0.29	0.77	0.29	0.29	0.38	0.41	0.82
Unique coverage	0.39	0.03	0.03	0.39	0.03	0.03	0.03	0.06	0.38
Overall solution consistency	0.94			0.94			0.87		
Overall solution coverage	0.85			0.85			0.94		

Note(s): Frequency cut-off = 1 consistency cut-off = 0.858
Source(s): Authors own work

Table 5.
Sufficiency analysis results (complex; intermediate; parsimonious solutions)

analysis. To reach a balance between practicality and parsimony, only the intermediate solutions will be discussed, with three alternative configurations of causal conditions presented for achieving the outcome.

The first path includes a high membership score for both the goal clarity and maturity of the performance management system. Public managers provided with a clear representation of

their mission, as well as appropriate and timely performance measures, are more willing to purposefully use information. The second solution involves a high membership score for both goal clarity and developmental culture, but low membership score for prosocial motivation. This configurational path means that, although public managers do not manifest a high perception of the social impact of their work, they are able to purposefully use performance information if clear goals are set and there is a developmental culture that supports risk-taking. The third solution shows a high membership score for both goal clarity and prosocial motivation and a low membership score in developmental culture. Organizational units where public managers are aware of the social impact of their work and organizational goals are clearly set, are able to purposefully use performance information even in an organizational culture that is not particularly oriented towards innovation and development. Contrary to the previous solution, the prosocial motivation of public managers compensates for the lack of a developmental culture in a context of clear departmental goals.

The overall solution consistency is 0.94 and the coverage 0.85, meaning that 94% of the empirical cases presenting the three configurations are also characterized by the presence of the outcome, and the three paths explain 85% of all the empirical cases showing the outcome. In addition, each solution was evaluated by examining both the consistency and coverage scores and all the paths exhibited values higher than the suggested thresholds.

QCA can also be used to analyse configurations of causal conditions leading to the absence of the outcome (non-purposeful use of performance information) as factors leading to the presence or absence of the expected outcome might differ (*casual asymmetry*) (Fiss, 2011; Ragin, 2008). The analysis reveals only one solution conducive to a non-purposeful use of performance information (absence of outcome). This configuration includes the combination of a high membership score in developmental culture and managers' prosocial motivation with non-mature performance management systems (Table 6). If public managers perceive the social impact of their work and there is an organizational culture that supports risk-taking, a performance management system that is unable to provide timely and accurate measures prevents managers from using information in a purposeful way. A total of 86% of the organizational units showing this configuration showed a non-purposeful use of performance information (consistency value of 0.86 and raw coverage of 0.71).

Discussion

This research aimed to reveal the configurations of organizational and individual factors that support the purposeful use of performance information by public managers in a regional

Causal conditions	Solutions 1
Goal clarity	
Maturity of PM system	⊗
Developmental culture	●
Prosocial motivation	●
Number of cases	3, 7, 5, 13
Consistency	0.86
Raw coverage	0.71
Unique coverage	0.71
Overall solution consistency	0.86
Overall solution coverage	0.71

Note(s): Frequency cut-off = 1 consistency cut-off = 0.801
Source(s): Authors own work

Table 6. Sufficiency analysis results (intermediate) for non-purposeful use of performance information

government. The adopted configurational approach was used to evaluate the effect of the combination of multiple conditions on the selected outcome, identifying three alternative paths leading to the use of performance information for decision-making purposes.

First, the study highlights the central role played by goal clarity. At the regional government level, having a clear goal (a precisely stated and communicated departmental mission) is a necessary condition for the purposeful use of performance information. In fact, this factor was found in all three configurational paths leading to the outcome. By nature, public organizations pursue conflicting and vague goals to satisfy multiple stakeholders (Chun and Rainey, 2005); however, this ambiguity affects goal prioritization (Chen and Jia, 2023) and threatens the use of performance information for decision-making and resource allocation (Moynihan, 2015). Therefore, the definition of a shared mission and goals can reduce this structural ambiguity and guide managerial actions towards using performance information to reach clear objectives. Accordingly, mission orientation fosters organizational learning which, in turn, can be improved by public managers who are keen on using the developed knowledge and information to improve their actions (Moynihan and Landuyt, 2009). The results confirm previous academic contributions and demonstrate that clearly stated organizational objectives (goal clarity) support the purposeful use of performance information in the evaluation of actual achievements (Kroll, 2015) and in successfully implementing public management reforms (Moynihan *et al.*, 2012a).

The findings add new insights to the current scientific knowledge. First, this study demonstrates that goal clarity is not only one of the most important drivers of the purposeful use of performance information (Kroll, 2015) but also a necessary condition. However, goal clarity is not sufficient on its own, as the three distinct pathways identified also require other conditions to be present for a purposeful use of performance information.

In fact, the first solution suggests that clearly defined and shared goals need to be combined with a set of appropriate performance measures since the extent to which managers use information is determined by the type of performance measures and how these are presented (Moynihan, 2015). This highlights the need for a robust and mature performance management system that provides public managers with timely and useful information on the performance of the services provided. This finding is in line with previous contributions showing the positive relationship between the quality of performance measures and their actual use in managerial decisions, leading to more effective performance measurement systems (Lewandowski, 2019). The result contributes to the academic literature by highlighting that the positive effect of goal clarity is contingent upon the simultaneous existence of a mature performance management system, and vice versa, underscoring the need for additional confirmatory research on this contingency effect (Kroll, 2015).

This study offers empirical evidence regarding the implementation conditions (i.e. goal clarity) needed to facilitate the shift from the design phase to the use stage within the performance management cycle (van Helden *et al.*, 2012). These findings can be interpreted through the lens of goal-setting theory (Locke and Latham, 1990): well-designed objectives direct attention and mobilize efforts toward specific behaviours, motivating public managers to develop strategies such as using performance information for decision-making that facilitates the achievement of the required goal (Lunenburg, 2011).This first pathway also supports the professional community in terms of highlighting two interconnected organizational practices that are essential for purposeful performance information use: establishing clear and shared goals for each department, alongside relevant performance measures that align with decision makers' needs and facilitate necessary adjustments to achieve goals effectively.

The second configuration emphasises the need to combine clear goals with a developmental culture to persuade public managers who are not prosocially motivated to

use performance information. This evidence is consistent with previous contributions, which have recognized developmental culture as an important driver for the purposeful use of performance information (Moynihan *et al.*, 2012a; Moynihan and Pandey, 2010; Choi and Woo, 2022).

The findings contribute to the literature on organizational culture theory by proving further empirical support to the evolution of public organizations from traditionally hierarchical to open models characterized by adaptability, risk-taking, and readiness for change (Parker and Bradley, 2000). This study also supports the recognized role of organizational culture as a moderator between leadership and goal clarity, enhancing managers' willingness to contribute and achieve shared goals (Ali *et al.*, 2021). Therefore, within the context of the performance management cycle, public managers, who are provided with clear goals and work in a developmental organizational culture, are motivated to use performance information to achieve these objectives. These results should encourage practitioners to pair the definition of clear goals with the creation of a developmental culture that supports innovative and risk-taking behaviours (Zammuto and Krakower, 1991). Public organizations should also strive for a balance between the different cultural models that might coexist among departments within the same organization (Ali *et al.*, 2021).

The third configurational pathway shows that, in a weak developmental culture, the purposeful use of performance information can be achieved by prosocially motivated public managers provided with clear mission and goals. In fact, the purposeful use requires additional efforts in analysing data, communicating feedback, and challenging the status quo, potentially leading to organizational conflicts (Kroll, 2014). Not all individuals are willing to burden themselves with these tasks; however, those managers who are motivated by the awareness of their work's social impacts are more willing to engage in such challenges. This evidence contributes to the extant literature on the relationship between individual motivations and organizational characteristics such as goal clarity. Specifically, the results support the notion that public managers' commitment to achieving their goals, and consequently their willingness to use information for performance improvement, is heightened when these objectives are clearly articulated, perceived as significant, and thereby contribute to increased motivation (Ripoll, 2022).

Future research on performance management should explore the combined effects of prosocial motivation and goal clarity on performance information use, also exploring the internalization of organizational values (Kim *et al.*, 2023). The third pathway also provides valuable insights for public organizations struggling with changing the bureaucratic organizational culture, by suggesting the need to cultivate prosocial motivation among public managers, define clear goals, and communicate their societal impact to enhance purposeful performance information use.

Conclusions

The study has explored the combinations of organizational and individual conditions driving the purposeful use of performance information by head managers of seventeen organizational units operating at the regional government level. Unlike prior research, the study adopts a configurational approach (fuzzy-set QCA) to reveal three configurations of drivers that interact and collectively contribute to reaching the desired outcome. The first path requires both goal clarity and a mature performance management system. The second path suggests the combined presence of goal clarity and a developmental culture, particularly in the context of low levels of prosocial motivation among public managers. The third path requires goal clarity along with a high level of managers' prosocial motivation, especially in a weak developmental culture. Goal clarity emerges as a necessary condition, as it is present in all the solutions leading to the purposeful use of performance information. However, it should

be complemented by other factors related to the organizational culture, the performance management system, or individual motivation.

This study has some limitations. It adopts an intra-organizational perspective by comparing different units within the same public administration. Although this approach increases case comparability, it reduces the potential variability of the analysis. The results should therefore be extended by investigating other organizations, as further empirical evidence is needed to support broader generalizability. Furthermore, despite the adoption of method triangulation (Patton, 1999), the commitment of public managers may have been overstated, as observed in previous studies in similar contexts (Rivenbark *et al.*, 2019).

This contribution offers new research opportunities that future studies could explore across various organizations, also from different cultural, social, and environmental contexts. The study highlights the need for further configurational studies to address the following questions: is goal clarity a necessary condition for the purposeful use of performance information? Should it be complemented by other organizational and individual factors? Future research could also enrich the theoretical framework by introducing other potentially relevant conditions (Kroll, 2015), or by comparing their effects on political, perverse and passive uses of performance information.

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