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Assessing the Role of Board, Culture and Environmental Complexity on Performance Information Use in Nonprofit Organizations

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Abstract

Despite growing expectations for Nonprofit Organizations to implement performance measurement, empirical research on its actual use remains limited. To address such a gap, this study investigates the decision-facilitating use of performance information focusing on environmental complexities, the role of the board of directors, and organizational culture. The empirical setting is provided by Nonprofit Organizations located in the province of Bergamo (Italy) to which a survey was administered. The analysis shows that environmental complexity does not directly increase the use of performance information. Rather, it operates indirectly through an externally oriented board and a flexible culture, both serving as bridges that connect external pressures to internal systems.

Keywords

nonprofit organizations, performance information use, board of directors, organizational culture, performance measurement

Introduction

Over the last decades, Nonprofit Organizations (NPOs) have been characterized by increasing competition for scarce resources, growing demand for demonstrable social impact and heightened expectations of transparency (Hyndman & McKillop, 2018). Operating within a complex institutional environment in which the expectations of

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funders, beneficiaries, volunteers and regulators often diverge (Ebrahim, 2005), NPOs must navigate competing claims on organizational priorities. To survive and thrive under these conditions, they are increasingly called to adopt tools and practices that support both external accountability and internal decision-making (Benjamin & Campbell, 2015; Cordery & Sinclair, 2013; Hyndman & McConville, 2018; Lee, 2020).

Among these tools, performance measurement has been progressively promoted to this domain for its potential usefulness to both internal and external stakeholders (Benjamin & Campbell, 2015; Carman, 2011; Ebrahim, 2005; Hyndman & McConville, 2018; MacIndoe & Barman, 2013). The existing literature has primarily emphasized the role of external pressures in shaping the adoption and implementation of performance measurement systems (Carnochan et al., 2014; Lynch-Cerullo & Cooney, 2011), often framing these practices as mechanisms of accountability directed upward to donors and funders and downward to beneficiaries (Benjamin, 2013; Connolly & Hyndman, 2013). Meanwhile, several authors have proposed frameworks to assess NPO effectiveness, ranging from financial indicators focused on resource efficiency to multidimensional models linking inputs, outputs, outcomes and broader social impacts (Ebrahim & Rangan, 2014; Kendall & Knapp, 2000).

Although performance measurement practices have become increasingly widespread among NPOs, existing evidence suggests that the active use of performance information (UPI) for internal decision-making, rather than its mere collection or reporting to external stakeholders, remains limited (Cordery & Sinclair, 2013). This gap between the adoption of performance measures and their actual use points to the need for further investigation, particularly in the NPO field where only a limited number of contributions (i.e., Lee, 2020) examine how actors engage with performance information beyond its external accountability purpose.

On the contrary, considerable scholarly attention has been given/dedicated to the UPI for internal purposes in both public (i.e., Kroll, 2014; Van Dooren et al., 2010) and for-profit organizations (i.e., Henri, 2006; Franco-Santos et al., 2007, 2012). This well-established body of literature has identified a range of organizational, individual and contextual factors that may affect the UPI. However, as such use is likely to depend on contextual conditions, evidence drawn from different sectors and organizational fields may lead to divergent conclusions in terms of drivers, patterns and uses (van der Kolk, 2022). This suggests the importance of examining the internal UPI within NPOs as a distinct empirical and theoretical setting. The nonprofit sector, in fact, presents specific features, including differences in organizational goals, governance arrangements, organizational size and fields of activity. These characteristics may significantly shape both the meaning attributed to performance information and the ways in which it is mobilized for internal managerial purposes.

Against this background, this study seeks to advance the nonprofit literature by shedding new light on the factors affecting the decision-facilitating UPI in NPOs. To this end, we conceptualize performance information use as an organizational behaviour (Moynihan & Pandey, 2010), shaped by both external conditions and internal organizational features. Drawing on Resource Dependence Theory, we argue that NPOs are not self-sufficient entities but depend on external actors who control

resources that are critical to their survival and to the achievement of their mission (Miller-Millesen, 2003; Pfeffer & Salancik, 1978). This dependence makes NPOs particularly exposed to the expectations, pressures and demands of multiple stakeholder groups. As stakeholder heterogeneity increases, NPOs are likely to face a complex environment, in which different actors may hold divergent priorities, require different types of information, and rely on different criteria to assess organizational performance. In this paper, we focus on environmental complexity (ECO), conceptualized as dependence on heterogeneous groups of external stakeholders, and examine how such complexity translates into the organizational UPI for decision-facilitating purposes.

Specifically, we focus on the orientation of the board of directors and organizational culture as they represent two distinct and complementary mechanisms through which external dependencies are internally translated.

The board operates at the intersection between the internal and external environment and thus plays a key role in managing relationships with external stakeholders and securing critical resources. This role is especially salient in NPOs, where boards are often directly involved not only in monitoring and oversight but also in fundraising, community relations, stakeholder engagement and securing organizational legitimacy and critical resources (Abzug & Galaskiewicz, 2001; Brown, 2005; De Andrés-Alonso et al., 2009). An externally oriented board may therefore act as a boundary-spanning mechanism through which heterogeneous environmental demands are brought into the organization and translated into greater attention to performance information. Organizational culture, by contrast, involves a different mechanism through which external demands result in the active UPI. Culture shapes these processes by providing shared norms and values that influence how organizational members engage with information and respond to changing demands. Accordingly, a flexible culture, characterized by openness, dialogue, experimentation and adaptation, may facilitate the absorption of heterogeneous external signals and their translation into organizational learning and managerial action (Henri, 2006; Simons, 1995; Kroll, 2015).

This focus allows us to move beyond simply connecting ECO to performance information use; rather, it enables us to investigate how such a relationship may occur. In doing so, the study connects an external condition central to Resource Dependence Theory with organizational mechanisms that can explain why similar levels of stakeholder complexity may lead NPOs to use performance information differently.

To fulfil these research aims, we conducted a partial least squares structural equation modelling (PLS-SEM) analysis based on survey data from NPOs operating in the province of Bergamo, Northern Italy. The results suggest that ECO is not directly associated with the decision-facilitating UPI but operates through internal organizational factors. In particular, the relationship emerges when the board of directors acts as a bridge channelling external signals within the organization, and when flexible organizational culture (FOC) integrates information internally.

The remainder of this paper is structured as follows. The following section describes the theoretical background and identifies the research hypotheses. In the methods section, the empirical setting, the variables and the model of analysis are presented. The results section reports the findings, while the final two sections discuss the results, draw some conclusions and suggest implications for further research.

Theoretical Framework and Research Hypothesis Development

The literature has widely acknowledged that the relevance of performance measurement systems depends not only on the availability and scope of indicators, but also on how performance information is actually used within organizations (Moynihan & Pandey, 2010; Van Dooren et al., 2010). Scholarly contributions recognize a variety of possible uses of performance information, broadly distinguishing between external and internal uses (Hammerschmid et al., 2013). Externally, performance information can be used to provide accountability, communicate and engage with stakeholders, as well as to maintain credibility and legitimacy. Internally, performance information may play both a decision-facilitating and a legitimization role (Demski & Feltham, 1976; Feldman & March, 1981; Franco-Santos et al., 2007; Henri, 2006; Saliterer & Korac, 2013; Speklé & Verbeeten, 2014). Legitimizing uses refer to the employment of performance information to justify decisions ex post, with the aim of preserving the status quo and validating past actions rather than fostering organizational change or performance improvement (Burchell et al., 1980; Feldman & March, 1981). By contrast, the decision-facilitating role encompasses monitoring (e.g., setting and tracking goals, comparing expected and actual results), attention-focusing (i.e., guiding organizational priorities and fostering learning and shared understanding), and support for strategic decision-making (i.e., informing non-routine decisions) (Henri, 2006; Speklé & Verbeeten, 2014; Vandenbosch, 1999; Verbeeten & Speklé, 2015).

With specific reference to NPOs, Eckerd and Moulton (2011) offer a classification of the most common uses of performance information in this sector, distinguishing between instrumental, conceptual and symbolic uses. Instrumental uses refer to situations in which performance results directly influence organizational behaviour, for instance, by improving efficiency and effectiveness, reassessing alignment with the organizational mission, or informing expenditure priorities. Conceptual uses, instead, affect the organization indirectly through learning processes, such as satisfying funder requirements, informing the board or motivating staff and volunteers. Finally, symbolic uses involve employing performance information primarily for signalling purposes, such as demonstrating legitimacy to donors, promoting the organization or obtaining certifications, without necessarily leading to substantive organizational change. This classification embodies a broader distinction between performance information used to prove results achieved and performance information used to improve results. Using performance information to prove results achieved primarily serves external accountability purposes, responding to funders', regulators' and other stakeholders' demands for transparency and justification, as well as internal legitimation and justification of past decisions. Conversely, using performance information to improve results relates to its role in internal decision-making, learning, and organizational adaptation and behaviours (Moynihan, 2009; Van Helden et al., 2012). In this paper, we focus on the latter dimension, which remains comparatively underexplored in nonprofit sector research.

ECO and the Use of Performance Information

Commonly defined as 'the number of items or elements that must be dealt with simultaneously by an organization' (Scott, 1992, p. 230), ECO refers to the multiplicity, heterogeneity and interdependence of external actors and stakeholders upon whom the organization depends. It characterizes the operating context of many NPOs, which are marked by the presence of multiple external stakeholder groups such as donors, beneficiaries, public agencies and community members with whom organizations interact to acquire and sustain critical resources and legitimacy.

Resource Dependence Theory provides a particularly useful lens for understanding why ECO matters for NPOs: as the number and heterogeneity of external stakeholders increase, organizations become more dependent on multiple actors for critical resources and legitimacy, thereby intensifying the need to monitor, interpret and respond to external demands. According to this perspective, organizational survival depends on the ability to cope with complexity by managing external dependencies to secure access to essential resources (Aldrich, 1976; Hodge & Piccolo, 2005; Pfeffer & Salancik, 1978). At the same time, organizational structures, governance arrangements and decision-making processes are strongly influenced by the need to meet external demands while preserving autonomy and mission integrity (Ebrahim, 2005).

Greater ECO due to the existence of a multiplicity of stakeholder relationships increases information-processing demands, as organizations must interpret diverse external signals and reconcile competing claims (Galbraith, 1974). As a result, the assessment of organizational performance, the prioritization of objectives and the evaluation of the consequences of managerial choices become more complex (Greening & Gray, 1994; Verschuere & De Corte, 2014). This implies that performance information becomes particularly relevant not only for external accountability and legitimacy purposes, but also for providing the organization with reliable information to support decision-making (Ebrahim, 2005; Henri, 2006; LeRoux & Wright, 2010; Nitzl et al., 2019). In this vein, performance information helps NPOs interpret and manage ECO by supporting informed decision-making, guiding managerial action and enabling adaptive responses to changing stakeholder demands (Henri, 2006; Lee, 2020). Hence, the following hypothesis:

Hypothesis 1 (H1): ECO is positively associated with the decision-facilitating UPI in NPOs.

The Mediating Role of the Board of Directors and the Organizational Culture

The UPI can be understood as a form of organizational behaviour (Moynihan & Pandey, 2010) influenced by both external pressures and internal organizational factors. Performance measurement, in fact, does not operate in isolation, and its effects depend on how it interacts with other organizational practices and governance arrangements (Malmi & Brown, 2008). Moreover, as there is no universally optimal configuration of performance measurement, its use should align with ECO, internal culture and

governance structures (Chenhall, 2003; Malmi & Brown, 2008). Accordingly, while external dependencies may increase informational demands, internal organizational factors ultimately determine whether performance information is used for improvement-oriented purposes.

In particular, the board of directors (Guo et al., 2011; Lauck & Bhattacharjee, 2023) and organizational culture (Ihm & Kim, 2021) are two internal factors that can mediate the influence of ECO on the decision-facilitating UPI.

In NPOs, the board of directors often plays an active and strategic role (Coombes et al., 2011; Taylor et al., 1996), as it can help the organization secure critical resources, manage stakeholder relationships and reduce environmental uncertainty, from the perspective of resource dependence theory (Pfeffer & Salancik, 1978).

In particular, it is responsible for ensuring legal and financial oversight, as well as for leading the organization towards the achievement of its mission, while maintaining the trust and accountability expected by a wide range of stakeholders. According to a broad stream of studies (Brown & Guo, 2010; Miller-Millesen, 2003), the board performs internal roles related to the organization's governance and management–such as strategy and planning, financial oversight, executive supervision and policy oversight–and external roles related to its interaction with the environment, including fund development, public relations, performance scrutiny and reporting.

Owing to NPOs' strong reliance on external resources, boards are frequently involved in managing relationships with stakeholders and in interacting with the organization's environment. In this respect, they may operate as boundary-spanners (Abzug & Galaskiewicz, 2001), enabling access to critical resources and representing the organization across social and economic arenas. NPO boards, therefore, absorb uncertainty, reduce operational dependencies, exchange information, and represent the organization to external stakeholders (Miller-Millesen, 2003). Moreover, boards whose organizations operate under conditions of complexity may be more involved in transactions with the external environment, devoting greater attention to stakeholder engagement, networking and fundraising activities (Brown, 2005; De Andrés-Alonso et al., 2009). In this sense, ECO may stimulate the external orientation of the board of directors, which evolves into a strategic agent able to address environmental dependencies, mitigating uncertainty, and safeguarding organizational autonomy (Greening & Gray, 1994).

Prior research indicates that boards shape the ways in which performance information is generated and mobilized by endorsing measurement practices and sustaining its use beyond mere symbolic or compliance-driven use (Lauck & Bhattacharjee, 2023; Miller-Millesen, 2003). Boards can act as carriers and legitimators of organizational practices (Westphal & Zajac, 1997), and an externally oriented board, especially, may import, endorse and institutionalize formal performance measurement systems as appropriate responses to environmental demands. Since the UPI is influenced by leaders' active endorsement and sensemaking processes (Moynihan, 2008; Moynihan & Pandey, 2010), such boards can play this interpretive role, framing performance data as strategically relevant and legitimizing its integration into decision-making processes. In this sense, a positive relationship can be expected between the external orientation of the board and the UPI.

However, a strong external orientation does not automatically translate into a greater UPI for decision-facilitating purposes. Externally focused boards may be less interested in promoting formalized practices, thereby reducing the pressure for developing and using performance measurement systems. Instead, they may rely on hands-on involvement, substituting formal internal mechanisms with informal knowledge and direct oversight (Cornforth, 2002). In such cases, informal information and frequent interaction with management can replace formal performance information as mechanisms for supporting decision-making (Cornforth, 2002; Miller-Millesen, 2003). As a result, the decision-facilitating use of performance measurement may remain limited, as boards rely on alternative practices and information to cope with external stakeholders. These practices may be preferred as they are perceived to ensure rapid organizational responsiveness to external demands and emerging opportunities. In this respect, a negative relationship can also be expected between the external orientation of the board and the UPI.

Consequently, the board of directors can mediate the relationship between ECO and the decision-facilitating UPI, but this mediation may either strengthen or weaken the internal UPI depending on how its external orientation is enacted within the organization. Thus, the second hypothesis is formulated as follows:

Hypothesis 2 (H2): The relationship between ECO and the decision-facilitating UPI is mediated by an externally focused board of directors.

The second internal factor that can mediate the relationship between ECO and the UPI is organizational culture. Defined as a combination of values, attitudes and beliefs shared by organizational members (Schein, 1985), organizational culture shapes how control systems and performance measures operate and are interpreted within organizations (Simons, 1995).

Organizational culture can take a variety of forms. According to the Competing Values Framework, cultures can be positioned along a core dimension contrasting stability and flexibility (Cameron & Quinn, 1999; Hartnell et al., 2011; Zammuto & Krakower, 1991). Cultures oriented towards stability, namely hierarchical and market cultures, rely on standardized rules, clearly defined responsibilities and control. In contrast, clan and adhocracy cultures are oriented towards flexibility, emphasizing organizational adaptability and the capacity to reorganize rapidly in response to new tasks or environmental challenges (Burns & Stalker, 1961). Beyond these structural distinctions, organizational culture can be interpreted as an adaptive mechanism through which organizations respond to ECO (Katz & Kahn, 1978; Schein, 2004; Scott, 1987). In environments characterized by heterogeneous stakeholder demands, flexibility-oriented cultures may enhance organizations' capacity to interpret diverse external signals and to respond adaptively, supporting both internal integration and engagement with external stakeholders (Kluckhohn & Strodtbeck, 1961; Langer & LeRoux, 2017).

Building on this perspective, a FOC may shape how performance information is processed and used. However, prior research provides mixed evidence on the relationship between flexibility-oriented culture and performance information use. On

the one hand, several studies point to a positive association. For instance, Henri (2006) shows that organizations characterized by a dominant flexibility orientation tend to rely more extensively on performance measures and use performance information to focus organizational attention, support strategic decision-making and legitimize actions, compared to organizations with a control-dominant culture. Similarly, Moynihan and Pandey (2010) find that a more open, innovative and risk-taking culture is associated with higher levels of performance information use among public managers. These findings suggest that flexibility-oriented cultures may reinforce the role of performance information as a meaningful input into managerial deliberation, facilitating its integration into decision-making processes. On the other hand, flexibility-oriented cultures may also attenuate reliance on formalized performance information. In highly dynamic and learning-oriented contexts, organizations may prefer informal coordination mechanisms over routinized and formal measurement practices (Ouchi, 1979). This reliance on informal control mechanisms may reduce attention to the development, codification and systematic UPI (Cardinal et al., 2004).

Therefore, organizational culture may play a mediating role in the relationship between ECO and the UPI for decision-facilitating purposes. Nevertheless, the direction of this effect is not univocal, as flexibility-oriented cultures may either facilitate or attenuate the internal UPI. Hence, the following hypothesis:

Hypothesis 3 (H3): The relationship between ECO and the decision-facilitating UPI is mediated by FOC.

Research Design

To gain deeper insight into the relationship between ECO and the UPI for decision-facilitating purposes in NPOs, the literature on mediation mechanisms offers a valuable framework to explain whether and how such relationships occur (Baron & Kenny, 1986). An externally oriented board of directors and FOC are conceptualized as mediating variables representing pathways through which stakeholder pressures can be interpreted, internalized and translated into a greater decision-facilitating UPI.

Figure 1 presents the proposed conceptual model, summarizing the relationships between these variables and outlining the hypotheses to be empirically tested using the PLS-SEM methodology.

To test the research hypotheses, we conducted a survey-based study analysed through PLS-SEM on a sample of NPOs in the province of Bergamo (Italy). The following subsections describe the sample and data collection, as well as the methods and measurement variables employed.

Sample and Data

The data used to test the study hypotheses were collected from NPOs in the province of Bergamo in Northern Italy. The Italian third sector represents a large and heterogeneous

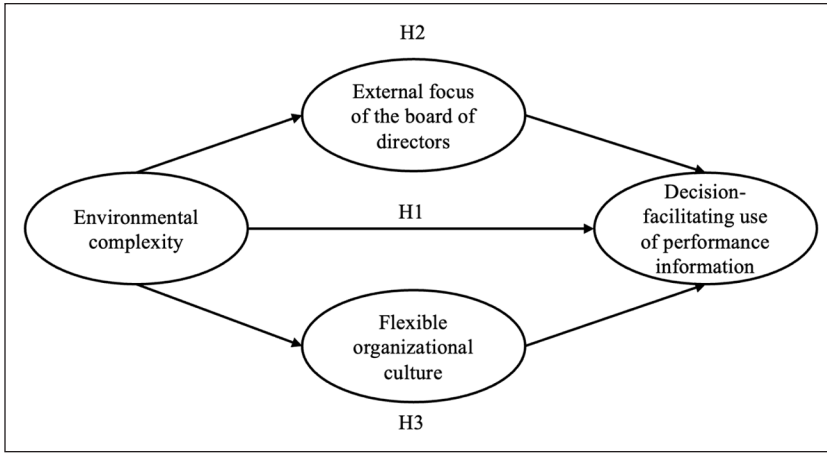


Figure 1. Model representation.

component of the national welfare system. More than 368,000 NPOs operate in Italy, employing approximately 949,000 workers and involving around 4.7 million volunteers (Italian National Institute of Statistics [ISTAT], 2023). The sector is highly fragmented and predominantly composed of small organizations, often relying on volunteer work and limited financial resources. These structural characteristics are also reflected in the province of Bergamo, which shows a density and sectoral distribution of NPOs broadly consistent with national patterns, along with a strong presence of organizations operating in welfare, health care, and community services. In recent years, the institutional framework of the sector has undergone significant changes following the Third Sector Reform (Law 106/2016 and Legislative Decree 117/2017), which strengthened governance and accountability requirements and highlighted the role of the board of directors as a key body responsible for strategic orientation and oversight of the organizations. At the same time, Italian NPOs are facing increasing expectations of transparency and accountability from public authorities, foundations, and private donors. These pressures, together with the reporting requirements introduced by the reform and the growing attention to social impact measurement, are contributing to the gradual diffusion of managerial practices, including the introduction and use of performance measurement.

Third Sector Reform also introduced the National Single Register of Third Sector Entities (RUNTS), the official national register established by the Italian Ministry of Labour to identify organizations that formally qualify as Third Sector Entities (ETS). It includes voluntary organizations, social promotion associations, social enterprises, philanthropic entities and other NPOs carrying out activities of general interest. Registration provides access to the legal and institutional framework governing relationships with public administrations, including co-programming, co-design, accreditation, and certain forms of contracting and partnership. Consequently, the register includes a substantial number of organizations engaged in welfare, health care and community services.

This research reached out to 1,093 organizations listed in RUNTS as of August 1, 2022, to whom an online survey link was sent between October and December 2022. These organizations represented the complete set of entities included in the RUNTS list for the province of Bergamo at the time the sampling frame was extracted.

The focus on the Bergamo province reflects the aim of ensuring greater sample homogeneity, thereby limiting the influence of macroeconomic and territorial variables that could interfere with the relationships among the variables of interest. The survey consisted of 32 questions covering many management and governance aspects: demographic information; sector of intervention and beneficiaries; governance structure; main roles and activities of the board of directors; volunteer management practices; relationships with local stakeholders; performance measurement and evaluation; innovation orientation; organizational culture.

A total of 449 completed surveys were collected, yielding a response rate of 41%. This notably high response rate was achieved through three follow-up reminders, a letter of endorsement from the main local network of NPOs (Centre for Services to Voluntary Sector Organizations – CSV), and the offer of a gift voucher to participants. The predominance of small organizations in our sample is consistent with the highly fragmented structure of the Italian nonprofit sector (ISTAT, 2023). Similarly, the substantial presence of health care and social assistance organizations is coherent with the RUNTS population, which includes many entities delivering welfare and community services in collaboration with public administrations.

Of these, 49 responses were excluded due to a significant number of missing data in one or more areas of interest for this study. Consequently, the analyses were conducted on a sample of 400 organizations. To ensure the adequacy of the sample size for the structural model estimation, a power analysis was conducted. According to power analysis guidelines for PLS-SEM ($\alpha = .05$; power $= 0.80$), a minimum sample size of 352 observations is required to detect small effect sizes ($f^2 = 0.02$). The actual sample size ($n = 400$) is therefore adequate to ensure statistical reliability and model robustness (Hair et al., 2021). Table 1 includes the main organizational data of the respondents.

Methods and Variables

The statistical analysis is based on PLS-SEM conducted using SmartPLS-4 software to assess the model and test the research hypotheses. This methodology was adopted for two reasons. On the one hand, the constructs used include multi-item scales to capture specific dimensions, and SEM allows them to be summarized into latent variables; on the other hand, SEM allows measurement errors and multiple endogenous latent variables to be handled within a single model (Hair et al., 2021). As for the selection of the PLS technique, it was motivated by the need to include formative constructs (Hair et al., 2021). Table 2 includes details of the constructs and survey wording.

Dependent Variable. As a dependent latent variable, we consider the UPI for decision-facilitating purposes (UPI). The items were developed consistently with prior studies on performance information use in NPOs that have conceptualized internal use as being

Table 1. Respondents.

Sector of activities	*N*	%
Healthcare	131	32.75
Social assistance	119	29.75
Culture	71	17.75
Civil protection	24	6.00
Philanthropy and voluntarism	17	4.25
Environment and animal protection	13	3.25
Advocacy and protection of rights	6	1.50
Sport	6	1.50
Other	12	3.00
Total	400	100.00
Revenues (year 2021):		
<50,000 Euros per year	352	88.00
From 50,000 to 250,000 Euros	36	9.00
>250,000 Euros	12	3.00
Total	400	100.00

devoted to generating improvement directly through the increase of efficiency and effectiveness and indirectly through the learning process and organizational dialogue (Eckerd & Moulton, 2011; Lee, 2020). Accordingly, the scale captures three complementary dimensions of performance information use. The construct is operationalized through three formative survey items, measured on a 1 to 5 Likert-type scale, which capture these aspects (Table 2). While the UPI for cost monitoring (UPI-1) is widely diffused (Q1, median, and Q3 = 5), the other two practices that emphasize the UPI for improving the quality of services (UPI-2) and nurturing organization dialogue (UPI-3) show greater variability, indicating a less homogeneous diffusion across the sample (Table 3).

Independent Variable. As the independent variable, we considered the complexity of the external environment, which captures the dimension of the stakeholders' network of each NPO through a single variable (ECO) operationalized as stakeholder range, namely the number of external stakeholder categories with which each NPO reported having significant relationships (Parent & Deephouse, 2007). The survey included a set of questions asking the respondents to select the groups of stakeholders with which they had a significant relationship in the last year. The maximum number of stakeholder groups was 8 and included health care organizations, social cooperatives, other NPOs, public administrations, foundations promoting grants, schools and universities, networks of private and public organizations, and other stakeholders (including the business sector); consequently, this variable ranged from 0 to 8 (Table 2). ECO is centred on medium-low values (Q1 = 1; median = 2; Q3 = 3), suggesting a limited number of significant external relationships for a substantial part of the sample and, consequently, relatively low ECO (Table 3).

Table 2. Constructs and Survey Wording.

Construct/variable	Scale	Item	Survey wording/concepts
Environmental complexity	0 (none) to 8	ECO	In the last year, the organizations had a significant relationship with (a) healthcare organizations; (b) social cooperatives; (c) public administration; (d) foundations; (e) other NPOs; (f) network of private or public organizations; (g) schools or universities; (h) other actors (including businesses).
Board of directors external focus	1–5	BEF-1	The board of directors is actively engaged in fundraising.
		BEF-2	The board of directors is actively involved in maintaining a positive relationship with stakeholders.
Flexible organizational culture	1–5	FOC-1	Great attention is given to the people who work here.
		FOC-2	The environment is dynamic, and individuals are willing to take on responsibility.
		FOC-3	Coordinators take responsibility themselves and encourage others to be innovative and proactive.
		FOC-4	Volunteers and members share a strong sense of belonging.
		FOC-5	There is a daily commitment to being the best in our field.
		FOC-6	The centrality of people, cohesion, and morale is constantly emphasized.
		FOC-7	Focus is placed on personal growth, and facing new challenges is important.
Decision-facilitating use of Performance Information	1–5	UPI-1	Performance information is used to carefully monitor costs.
		UPI-2	Performance information is used to improve the quality of the services provided.
		UPI-3	Performance results are discussed among volunteers, employees, and/or coordinators.

Note. ECO = environmental complexity; BEF = board of directors external focus; FOC = flexible organizational culture; UPI = use of performance information.

Mediating Variables. As mediating variables, we considered the externally focused board of directors and the FOC, connecting ECO and the UPI. The measures of the externally focused board of directors construct aim to capture whether the board is actually engaged in the involvement and management of external stakeholder groups (Brown & Guo, 2010; Callen et al., 2010). BEF captures two salient dimensions of the board's external engagement: resource acquisition through fundraising involvement and community/stakeholder relations (Abzug & Galaskiewicz, 2001; Brown, 2005; Brown & Guo, 2010). We used a formative construct of two survey items (BEF-1 and BEF-2) to measure the intensity of these activities with a 1 to 5 Likert-type scale. While BEF-1 is highly concentrated at the upper end of the scale (Q1 = 4), pointing to

Table 3. Descriptive Statistics and Correlation Matrix.

Variable	Mean	Min	Q1	Q2	Q3	Max	MES	BEF-1	BEF-2	FOC-1	FOC-2	FOC-3	FOC-4	FOC-5	FOC-6	FOC-7	UPI-1	UPI-2	UPI-3
ECO	2,50	0	1	2	3	8	1.000												
BEF-1	4.40	1	4	5	5	5	.107	1.000											
BEF-2	4.05	1	3	4	5	5	.106	.436	1.000										
FOC-1	4.37	1	4	5	5	5	.059	.396	.243	1.000									
FOC-2	4.22	1	4	4	5	5	.135	.462	.329	.513	1.000								
FOC-3	4.27	1	4	4	5	5	.127	.505	.353	.412	.445	1.000							
FOC-4	4.40	1	4	5	5	5	.091	.452	.287	.393	.460	.627	1.000						
FOC-5	4.03	1	3	4	5	5	.072	.351	.290	.347	.289	.434	.372	1.000					
FOC-6	4.62	1	4	5	5	5	.090	.537	.300	.489	.467	.483	.477	.377	1.000				
FOC-7	4.40	1	4	5	5	5	.071	.442	.285	.297	.365	.480	.458	.408	.589	1.000			
UPI-1	4.65	1	5	5	5	5	.024	.404	.272	.352	.279	.367	.337	.283	.412	.392	1.000		
UPI-2	4.00	1	3	4	5	5	.129	.461	.377	.178	.242	.471	.340	.365	.322	.448	.422	1.000	
UPI-3	4.07	1	3	4	5	5	.119	.365	.321	.166	.235	.400	.317	.324	.243	.272	.322	.579	1.000

Note. ECO = environmental complexity; BEF = board of directors external focus; FOC = flexible organizational culture; UPI = use of performance information.

widespread board involvement in fundraising, BEF-2 (Q1 = 3) displays greater variability, suggesting more differentiation in community engagement practices (Table 3).

The measures of the FOC construct aim to capture whether the organizational culture is characterized by the values of flexibility and adaptability (Cameron & Quinn, 1999; Hartnell et al., 2011; Zammuto & Krakower, 1991). The scale is grounded in the Competing Values Framework, which distinguishes cultural orientations according to the emphasis placed on stability versus flexibility and internal versus external focus (Cameron & Quinn, 1999). Consistently with this framework, our items capture flexible cultural orientations related to clan and developmental values, including participation, cohesion, people orientation, learning, innovation, and adaptation. We used a seven-item reflexive construct to measure the presence of these features using a 1 to 5 Likert-type scale (Table 2). These items are adapted from the original framework and reformulated to fit the nonprofit context by explicitly accounting for the role of volunteers and members within the organization. They capture aspects of organizational culture that emphasize discretion, adaptability, and people development, and typically characterize clan and adhocracy organizational cultures.

The descriptive statistics (Table 3) indicate that at least 75% of organizations report high levels of attention to people, cohesion, empowerment and growth orientation.

Results

PLS-SEM analysis involves a two-step process: (a) evaluating the measurement model and (b) developing the structural model. The measurement model examines the reliability and validity of the indicators for their respective constructs, while the structural model verifies the hypothesized relationships among the constructs.

The constructs of decision-facilitating UPI and external orientation of the board are considered formative since each item measures a specific dimension of the construct, while FOC is considered reflective, meaning that its set of items reflects the content of the corresponding construct, and the items are interchangeable (Garson, 2016).

The results show a Cronbach's alpha coefficient for FOC equal to .84, indicating a good level of internal consistency among the items measuring the construct. This suggests that, as a reflective construct, its indicators can be considered interchangeable. Conversely, the external orientation of the board and UPI constructs show Cronbach's alpha values of .70 and .60, respectively, suggesting lower internal consistency and confirming that the items are not fully interchangeable – in line with the formative nature of these constructs.

Measurement Model Evaluation

According to the nature of the constructs, the evaluation criteria change (Hair et al., 2021). More specifically, while the assessment of reflective constructs involves examining indicator loadings, internal consistency reliability, convergent validity and discriminant validity, the assessment of formative constructs includes indicator loadings, indicator weights, and multicollinearity analysis (Hair et al., 2021).

Table 4. Loadings of FOC Construct.

Construct	Flexible culture
FOC <= FOC-1	0.640
FOC <= FOC-2	0.670
FOC <= FOC-3	0.796
FOC <= FOC-4	0.758
FOC <= FOC-5	0.639
FOC <= FOC-6	0.772
FOC <= FOC-7	0.739

Note. FOC = flexible organizational culture.

Table 5. Internal Consistency and Convergent Validity of FOC Construct.

Construct	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
FOC	.844	.856	.881	.517
Threshold	*.700*	*.700*	*.700*	*.500*

Note. FOC = flexible organizational culture.

Table 6. Indicator Weights and Multicollinearity of a Formative Construct.

Construct	Indicator	Weights	*p* values	VIF
BEF	BEF-1	0.759	.000	1.235
	BEF-2	0.399	.000	1.235
UPI	UPI-1	0.489	.000	1.230
	UPI-2	0.513	.000	1.655
	UPI-3	0.247	.003	1.518

Note. VIF = variance inflation factor; BEF = board of directors external focus; UPI = use of performance information.

With reference to the reflective construct of FOC, we employed 0.6 as the threshold for indicator loading on its respective latent construct (Table 4). According to Hair et al. (2021), loadings higher than 0.5 are acceptable if the measurement model meets the threshold of internal consistency and convergent validity (Table 5). Discriminant validity is not assessed because the model includes only one reflective construct.

With reference to the constructs of the external orientation of the board and UPI, Table 6 shows that the formative indicator weights are statistically significant and have acceptable variance inflation factor values (VIF, lower than 3), indicating no multicollinearity issues.

Table 7. Bootstrapping Effects and Hypothesis Testing.

Hypothesis	Path	Coefficient	*SD*	*t* statistics	*p* values	Result
H1	ECO => UPI	0.020	0.038	0.517	.605	Not supported
H2	ECO => BEF	0.124	0.046	2.692	.007	Positive mediation
	BEF => UPI	0.314	0.054	5.782	.000	supported
H3	ECO => FOC	0.128	0.049	2.620	.009	Positive mediation
	FOC => UPI	0.381	0.063	5.997	.000	supported

Note. ECO = environmental complexity; BEF = board of directors external focus; FOC = flexible organizational culture; UPI = use of performance information.

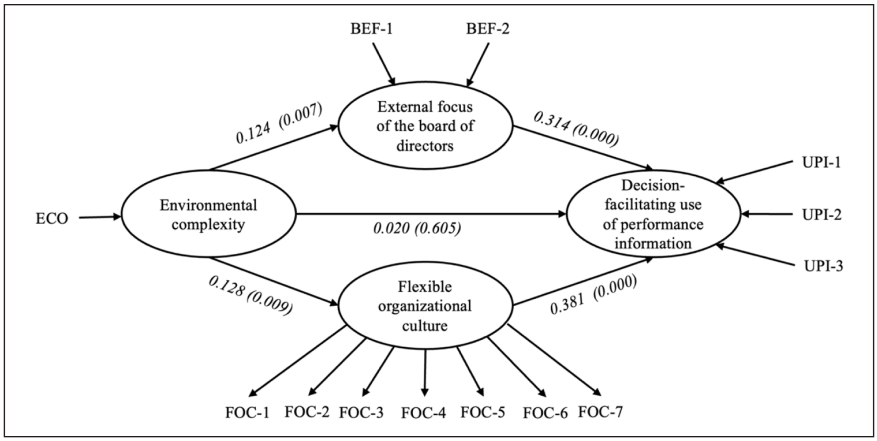


Figure 2. Hypothesis testing representation.

Structural Model

We ran a bootstrapping procedure to calculate *t*-statistics and *p*-values associated with the direct path coefficients of the structural paths hypothesized between the research latent variables. The R^2 of the model is equal to 0.401, suggesting that 40.1% of the variance of UPI is explained by MES, BEF and FOC. Table 7 and Figure 2 report standardized path coefficients for all direct associations tested in the structural model, along with a summary of the hypotheses.

Hypothesis 1 tested the direct relationship between ECO and the decision-facilitating UPI. Hypothesis 2 tested the mediation effect of an externally oriented board of directors on the UPI for decision-facilitating purposes. The mediation effect of flexible culture is tested by Hypothesis 3.

Hypothesis 1 is not supported, while Hypotheses 2 and 3 are supported, indicating that the influence of ECO on the decision-facilitating UPI occurs indirectly, through the board's external orientation and flexible culture, rather than through a direct path. The signs of both the BEF => UPI and FOC => UPI coefficients indicate that such

Table 8. Path Coefficients and *p*-values of Control Variables.

Control variable	Path coefficient	*p*-value
Size:		
Small (vs. medium)	−0.142	.235
Large (vs. medium)	−0.065	.768
Sector:		
Culture (vs. others)	−0.138	.259
Healthcare (vs. others)	0.052	.656
Social Assistance (vs. others)	0.106	.326

mediation is positive: greater ECO is associated with stronger external board orientation and a more flexible culture, which in turn leads to a greater decision-facilitating UPI.

As for the relevance of path coefficients, we can observe that the direct effect of both the externally oriented board (coefficient: 0.314) and FOC (coefficient: 0.381) on the decision-facilitating UPI is strong, while the effect of ECO on both the externally oriented board (coefficient: 0.124) and FOC (coefficient: 0.128) are mild. Therefore, although positive and statistically significant, the influence of the external environment on both the board's external orientation and flexible culture is relatively weak. In contrast, the stronger effects of the board's external orientation and FOC on the decision-facilitating UPI confirm that internal organizational factors – particularly governance orientation and culture – play a positive mediating role in shaping the effective UPI. This highlights the central role of internal governance and cultural factors as drivers of performance information use for decision-facilitating purposes, once they have been developed within the organization.

Analysis of Control Variables

To ensure the robustness of the results, we tested the effects of two control variables (Memon et al., 2024), specifically organizational size and sector, on the dependent variable. Size was represented by two dummy variables for small and large associations, with medium as the reference category. As for sector, the three most prevalent areas in the sample – culture, health care and social assistance – were each included as dummy variables. The structural model was estimated both with and without the control variables. The inclusion of these variables did not affect the significance or direction of the main structural paths and resulted in minimal changes in their coefficients, while the control variables were not significantly associated with UPI (Table 8). The final version of the model is presented without control variables for the sake of parsimony (Memon et al., 2024).

Discussion

The effective UPI for decision-facilitating purposes is inherently challenging, as it is shaped by a range of contingent factors influencing the implementation of performance

measures within specific organizational settings (Malmi & Brown, 2008; Simons, 1995). In NPOs, these challenges may be even greater due to the distinctive features that characterize this sector. The absence of traditional 'owners' and dependence on multiple stakeholders translate into a complex external environment that affects governance and organizational structures, as well as the configuration and UPI. Since many external stakeholders provide critical resources for organizational survival (Pfeffer & Salancik, 1978), NPOs need to manage these relationships by using performance information not only to demonstrate accountability externally, but also to support internal decision-making.

Accordingly, we hypothesized that ECO, measured in terms of the multiplicity of external stakeholders, would foster the use of performance measures for decision-facilitating purposes. However, our findings show that such a condition alone does not directly translate into the decision-facilitating UPI, and additional factors need to be considered. In particular, we examined the mediating role of the board of directors and organizational culture.

In line with the Resource Dependence Theory, the board of directors in NPOs is commonly conceptualized as a key governance mechanism designed to manage uncertainty and secure critical resources from an external and interdependent complex environment (Miller-Millesen, 2003; Pfeffer & Salancik, 1978). Within this theoretical perspective, it performs a boundary-spanning role, overseeing a wide range of functions. However, as discussed in the previous sections, it remains unclear whether and how these activities exert a positive or negative influence on the UPI for decision-facilitating purposes. The mediation analyses reveal a dual positive effect: ECO is positively associated with a more externally oriented board of directors, and, in turn, an externally oriented board is positively associated with the UPI. Therefore, the multiplicity of external stakeholders appears to strengthen the presence of an externally focused board, while such a board simultaneously promotes the UPI for decision-facilitating purposes. *These findings may also be interpreted as consistent with the view that the board* facilitates communication, collaboration and the circulation of information between external stakeholders and NPO management, thereby enhancing the organization's overall capacity to cope with ECO. Therefore, the function of collecting and interpreting information from the external environment (Miller-Millesen, 2003) is not entirely carried out directly by the board; rather, the board functions as a bridge that connects external pressures or needs with internal processes affecting the use of formal performance measures.

The second hypothesized mediator concerns organizational culture. Prior research has emphasized the association between organizational culture and performance information use, showing that flexible, learning-oriented and open cultures tend to encourage a more extensive use of performance measures (Henri, 2006). At the same time, however, a flexible culture may also attenuate the internal UPI, as an excessive reliance on informal or clan-like controls may divert managerial attention away from the development, formalization and documentation of structured control mechanisms (Cardinal et al., 2004). Our findings show that greater stakeholder multiplicity is associated with a more FOC, which in turn fosters the internal UPI. These results highlight two particularly relevant aspects. First, ECO itself appears to shape the emergence of

a flexible culture, fostering adaptive values, openness to change, and learning-oriented behaviours. Second, flexible culture does not supplant formal control systems; instead, it reinforces the UPI. Contrary to arguments suggesting that flexibility-oriented cultures may reduce the need for formalized controls, our findings indicate that such cultures are positively associated with the UPI. Overall, these findings suggest that organizational culture also acts as a bridging mechanism linking the external environment to the internal dynamics of NPOs, particularly with respect to the UPI. By emphasizing learning, adaptation, and openness, a flexible culture may facilitate the integration and translation of external complexity into performance measurement systems and support the active UPI. From this perspective, culture enables ECO to be absorbed, interpreted, and re-elaborated through organizational processes of performance-related sensemaking (Moynihan & Pandey, 2010; Nitzl et al., 2019).

Taken together, our findings provide an integrative framework linking ECO, nonprofit governance, organizational culture, and performance information use. In doing so, the study connects streams of research that have developed separately through threefold theoretical contributions.

First, the paper connects two strands of literature that have largely evolved independently: Resource Dependence Theory and the UPI. In this sense, the study extends Resource Dependence Theory from explaining organizational exposure and adaptation to the external environment to showing how such exposure can shape internal information practices. At the same time, our findings extend prior research on the drivers of performance information use by introducing a Resource Dependence perspective. Focusing on ECO, the study shows that heterogeneous external demands do not automatically translate into the UPI for decision-facilitating purposes. Rather, their influence depends on the organizational mechanisms through which external dependencies are interpreted and translated into internal actions. Specifically, the board and organizational culture play complementary roles: an externally oriented board connects the organization with its environment and channels external signals internally, while a flexible culture facilitates the interpretation, integration and use of such signals in decision-making.

Second, our findings extend research on nonprofit boards by linking their boundary-spanning role to the UPI for decision-facilitating purposes. Prior studies have mainly emphasized how boards connect NPOs to their environment, manage stakeholder relationships and external dependencies, and secure resources and legitimacy (Brown, 2005; Brown & Guo, 2010; Miller-Millesen, 2003). Consistent with this literature, we find that greater stakeholder multiplicity is associated with a stronger external orientation of the board, reflecting its role in absorbing uncertainty, exchanging information, representing the organization externally and addressing environmental dependencies (Abzug & Galaskiewicz, 2001; Brown, 2005; Miller-Millesen, 2003; De Andrés-Alonso et al., 2009). Yet our findings go further by showing that this external orientation supports the translation of external complexity into the UPI for decision-facilitating purposes. This suggests that boundary spanning does not end with securing resources or managing external relationships: it can also affect how information is mobilized inside the organization. The board thus acts as a translation

mechanism through which heterogeneous stakeholder demands are interpreted and channelled into information use for decision-making and improvement. This finding broadens existing understandings of nonprofit governance by identifying an internal managerial consequence of the board's external orientation.

Third, our findings contribute to the debate on the role of organizational culture in performance management. While flexibility-oriented cultures may foster the UPI by supporting openness, adaptation and learning (Henri, 2006; Moynihan & Pandey, 2010), they may also favour informal coordination over formal performance systems (Ouchi, 1979, 1980; Cardinal et al., 2004). Our findings show that, in specific contexts, flexibility complements rather than substitutes for the UPI. Specifically, greater stakeholder multiplicity is associated with a more FOC, and such flexibility, in turn, fosters the internal UPI.

Overall, the results suggest a process in which external complexity does not directly determine information use, but it is filtered through two intertwined pathways: an externally oriented board that connects the organization to its environment, and a flexible culture that embeds information use into everyday routines. By identifying these dual pathways, our study develops a more integrated understanding of performance information use, linking environmental conditions and internal organizational dynamics and highlighting the distinct mechanisms through which ECO is translated into or tackled through managerial practices.

Conclusion

Drawing on a survey-based structural equation model, this study investigates if and how ECO, measured in terms of the presence of multiple external stakeholder groups, influences the decision-facilitating UPI in NPOs, focusing on the mediating roles of the board of directors and organizational culture. The analysis shows that ECO does not directly increase the UPI for decision-facilitating purposes. Instead, it operates indirectly through both an externally oriented board and a FOC that bridge external demands and internal systems and embed external pressures within the internal routines and decision-making of NPOs. Moving beyond explanations of performance information use centred exclusively on either the external environment or internal organizational dynamics, these findings suggest an integrative approach which focuses on the interplay between ECO and internal mechanisms. In this way, the study connects Resource Dependence Theory, nonprofit governance, organizational culture, and performance management research, showing that the decision-facilitating UPI emerges from the interaction between external complexity and internal conditions. From a practical viewpoint, these findings have several implications. Specifically, any effort to develop performance measurement systems and stimulate their use should take into consideration the organization's underlying cultural features and the board's activities. This implies that investing in performance measurement tools alone may be insufficient if organizations do not simultaneously foster conditions that enable their meaningful use, such as openness to dialogue, learning-oriented values, and active governance involvement. In the absence of supportive cultural conditions, performance information may be collected yet remain unused, resulting in organizational

costs without generating corresponding benefits. Managers and board members should therefore pay attention not only to the technical design of performance measurement systems, but also to how these systems are embedded within organizational routines and decision-making processes. In particular, boards of directors can play a key role in legitimizing and promoting the UPI, while organizational culture can facilitate its integration into everyday managerial practices.

Notwithstanding the contributions of this study, it is important to recognize that some limitations may affect the interpretation and generalizability of the findings. As with any survey-based research, this study has methodological constraints that should be acknowledged when interpreting the findings. The data were collected through a self-reported questionnaire that may be subject to self-perception bias: respondents may have over- or under-estimated the use or effectiveness of performance measurement within their organizations, either consciously or unconsciously. Although efforts were made to ensure clarity and neutrality in the questionnaire design, this type of bias is difficult to eliminate entirely.

Furthermore, the empirical context may have influenced the results too. Italian NPOs tend to be relatively board-centred, with boards of directors often playing an active and hands-on role in organizational processes. This characteristic may have reinforced the observed mediating role of the board; in other institutional contexts, however, managerial authority may be more strongly concentrated in executive roles, such as the CEO or top management team, which could play a more prominent role in shaping the UPI. Future research could address these limitations by replicating the analysis in different institutional contexts characterized by more structured nonprofit sectors, or different governance configurations to assess whether the observed relationships hold under different conditions.

In addition, some scope-related considerations should be acknowledged. Regarding the role of the board of directors, our analysis primarily focused on its external engagement and resource-oriented functions. More specifically, the external orientation of the board was proxied through fundraising involvement and community/stakeholder relations, which capture two important but not exhaustive dimensions of the board's boundary-spanning role. However, NPOs' boards perform multiple roles beyond the legal and compliance duties typical of corporate governance. In many cases, they are directly involved in operational and managerial support to executives, contributing to the internal development of control and performance measurement tools. This dimension was not captured in our study and could be further explored in future research to gain a broader understanding of the board's contribution to the UPI.

As for organizational culture, this study focuses on a specific orientation towards flexibility. Our proxy combines items related to clan values, such as cohesion, participation and people orientation, with items related to developmental values, such as learning, innovation and adaptation. While both orientations belong to the flexible side of the Competing Values Framework, the measure does not fully distinguish the framework's second dimension, namely internal versus external focus. Other cultural orientations may also foster the adoption and effective use of performance measures, including the four cultural quadrants generated by the flexibility/stability and internal/external

dimensions. Moreover, within the Competing Values Framework (REF), cultures can be viewed along a continuum rather than as discrete types. Future studies could therefore adopt a configurational approach to examine how different cultural combinations shape the UPI, while also considering organizational age as a relevant contextual condition. The temporal dimension may be particularly important, as younger organizations may need to remain more flexible and may depend more strongly on the board's external engagement to secure funding and stakeholder support.

Finally, our measure of ECO is based on the number of external stakeholder groups on which the organization relies. While this provides a general indication of ECO, it does not capture the relative weight or criticality of each stakeholder category. More specifically, this proxy captures stakeholder breadth, but not the relative power, salience, urgency, or resource importance of different stakeholder groups. This is particularly relevant because stakeholder breadth may primarily capture the plurality of accountability relationships and the complexity of external reporting demands, while the link with internal, improvement-oriented performance information use may depend on additional sources of environmental uncertainty and managerial complexity. Future research could refine this approach by considering the degree of dependence on specific stakeholders – such as public administrations or philanthropic foundations – in terms of financial strategic relevance. Moreover, future studies could complement stakeholder breadth with other indicators of ECO, such as competition for resources or service users, the nature and complexity of service provision, funding precariousness, economic or legislative uncertainty, and exposure to operational, financial, or reputational risks. These dimensions may generate different information needs and may help explain more precisely when external complexity stimulates the internal UPI for planning, learning, risk management and decision-making.

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The data supporting the findings of this study are available from the corresponding author upon request.

References

Abzug, R., & Galaskiewicz, J. (2001). Nonprofit boards: Crucibles of expertise or symbols of local identities? *Nonprofit and Voluntary Sector Quarterly*, *30*(1), 51–73.

Aldrich, H. (1976). Resource dependence and interorganizational relations: Local employment service offices and social services sector organizations. *Administration & Society*, *7*(4), 419–454.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182.

Benjamin, L. M. (2013). The potential of outcome measurement for strengthening nonprofits' accountability to beneficiaries. *Nonprofit and Voluntary Sector Quarterly*, *42*(6), 1224–1244.

Benjamin, L. M., & Campbell, D. C. (2015). Nonprofit performance: Accounting for the agency of clients. *Nonprofit and Voluntary Sector Quarterly*, *44*(5), 988–1006.

Brown, W. A. (2005). Exploring the association between board and organizational performance in nonprofit organizations. *Nonprofit Management and Leadership*, *15*(3), 317–339.

Brown, W. A., & Guo, C. (2010). Exploring the key roles for nonprofit boards. *Nonprofit and Voluntary Sector Quarterly*, *39*(3), 536–546.

Burchell, S., Clubb, C., Hopwood, A., Hughes, J., & Nahapiet, J. (1980). The roles of accounting in organizations and society. *Accounting, Organizations and Society*, *5*(1), 5–27.

Burns, T., & Stalker, G. M. (1961). *The management of innovation*. Tavistock.

Callen, J. L., Klein, A., & Tinkelman, D. (2010). The contextual impact of nonprofit board composition and structure on organizational performance: Agency and resource dependence perspectives. *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, *21*, 101–125.

Cameron, K. S., & Quinn, R. E. (1999). *Diagnosing and changing organizational culture: Based on the competing values framework*. Addison-Wesley.

Cardinal, L. B., Sitkin, S. B., & Long, C. P. (2004). Balancing and rebalancing in the creation and evolution of organizational control. *Organization Science*, *15*(4), 411–431.

Carman, J. G. (2011). Understanding evaluation in nonprofit organizations. *Public Performance and Management Review*, *34*(3), 350–377.

Carnochan, S., Samples, M., Myers, M., & Austin, M. J. (2014). Performance measurement challenges in nonprofit human service organizations. *Nonprofit and Voluntary Sector Quarterly*, *43*(6), 1014–1032. https://doi.org/10.1177/0899764013508009

Chenhall, R. (2003). Management control systems design within its organizational context: Findings from contingency-based research and directions for the future. *Accounting Organizations and Society*, *28*, 127–168.

Connolly, C., & Hyndman, N. (2013). Charity accountability in the UK: Through the eyes of the donor. *Qualitative Research in Accounting & Management*, *10*(3-4), 259–278.

Coombes, S. M. T., Morris, M. H., Allen, J. A., & Webb, J. W. (2011). Behavioural orientations of non-profit boards as a factor in entrepreneurial performance: Does governance matter? *Journal of Management Studies*, *48*(4), 829–856.

Cordery, C. J., & Sinclair, R. (2013). Measuring performance in the third sector. *Qualitative Research in Accounting & Management*, *10*(3–4), 196–212.

Cornforth, C. (2002). *The governance of public and non-profit organizations* (Vol. 6). Routledge.

De Andrés-Alonso, P., Azofra-Palenzuela, V., & Romero-Merino, M. E. (2009). Determinants of nonprofit board size and composition: The case of Spanish foundations. *Nonprofit and Voluntary Sector Quarterly*, *38*(5), 784–809.

Demski, J. S., & Feltham, G. A. (1976). *Cost determination: A conceptual approach*. Iowa State University Press.

Ebrahim, A. (2005). Accountability myopia: Losing sight of organizational learning. *Nonprofit and Voluntary Sector Quarterly*, *34*(1), 56–87.

Ebrahim, A., & Rangan, V. K. (2014). What impact? A framework for measuring the scale and scope of social performance. *California Management Review*, *56*(3), 118–141.

Eckerd, A., & Moulton, S. (2011). Heterogeneous roles and heterogeneous practices: Understanding the adoption and uses of nonprofit performance evaluations. *American Journal of Evaluation*, *32*(1), 98–117.

Feldman, M. S., & March, J. G. (1981). Information in organizations as signal and symbol. *Administrative Science Quarterly*, *26*, 171–186.

Franco-Santos, M., Kennerley, M., Micheli, P., Martinez, V., Mason, S., Marr, B., Gray, D., & Neely, A. (2007). Towards a definition of a business performance measurement system. *International Journal of Operations &Production Management*, *27*, 784–801.

Galbraith, J. R. (1974). Organization design: An information processing view. *Interfaces*, *4*(3), 28–36.

Garson, G. D. (2016). *Partial least squares: Regression & structural equation models*. Statistical Associates.

Greening, D. W., & Gray, B. (1994). Testing a model of organizational response to social and political issues. *Academy of Management Journal*, *37*(3), 467–498.

Guo, C., Brown, W. A., Ashcraft, R. F., & Yoshioka, C. F. (2011). Strategic human resources management in nonprofit organizations. *Review of Public Personnel Administration*, *31*(3), 248–269.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage.

Hammerschmid, G., Van de Walle, S., & Stimac, V. (2013). Internal and external use of performance information in public organizations: Results from an international survey. *Public Money & Management*, *33*(4), 261–268.

Hartnell, C. A., Ou, A. Y., & Kinicki, A. (2011). Organizational culture and organizational effectiveness: A meta-analytic investigation of the competing values framework's theoretical suppositions. *Journal of Applied Psychology*, *96*(4), 677–694.

Henri, J. F. (2006). Management control systems and strategy: A resource-based perspective. *Accounting, Organizations and Society*, *31*(6), 529–558.

Hodge, M. M., & Piccolo, R. F. (2005). Funding source, board involvement techniques, and financial vulnerability in nonprofit organizations: A test of resource dependence. *Nonprofit Management and Leadership*, *16*(2), 171–190.

Hyndman, N., & McConville, D. (2018). Making charity effectiveness transparent: Building a stakeholder-focussed framework of reporting. *Financial Accountability & Management*, *34*, 133–147.

Hyndman, N., & McKillop, D. (2018). Public services and charities: Accounting, accountability and governance at a time of change. *The British Accounting Review*, *50*(2), 143–148.

Ihm, J., & Kim, E. (2021). How organizational culture shapes performance information use in nonprofits. *Nonprofit and Voluntary Sector Quarterly*, *50*(6), 1230–1252.

Italian National Institute of Statistics (ISTAT) (2023). *Censimento permanente delle istituzioni non profit: risultati 2023*.

Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations* (2nd ed.). Wiley.

Kendall, J., & Knapp, M. (2000). Measuring the performance of voluntary organizations. *Public Management: An International Journal of Research and Theory*, *2*(1), 105–132.

Kluckhohn, F. R., & Strodtbeck, F. L. (1961). *Variations in value orientations*. Row, Peterson.
Kroll, A. (2014). Why performance information use varies among public managers: Testing manager-related explanations. *International Public Management Journal*, *17*(2), 174–201.
Kroll, A. (2015). Drivers of performance information use: Systematic literature review and directions for future research. *Public Performance and Management Review*, *38*(3), 459–486.
Langer, J., & LeRoux, K. (2017). Developmental culture and effectiveness in nonprofit organizations. *Public Performance & Management Review*, *41*(1), 126–148.
Lauck, J. R., & Bhattacharjee, S. (2023). The role of board financial monitoring strength and donor pressure in nonprofit auditors' assessment of changes in program expense allocations. *Auditing: A Journal of Practice & Theory*, *42*(3), 71–86. https://doi.org/10.2308/AJPT-2023-042
Lee, C. (2020). Understanding the diverse purposes of performance information use in nonprofits: An empirical study of factors influencing the use of performance measures. *Public Performance & Management Review*, *43*(1), 81–108.
LeRoux, K., & Wright, N. S. (2010). Does performance measurement improve strategic decision making? Findings from a national survey of nonprofit social service agencies. *Nonprofit and Voluntary Sector Quarterly*, *39*(4), 571–587.
Lynch-Cerullo, K., & Cooney, K. (2011). Moving from outputs to outcomes: A review of the evolution of performance measurement in the human service nonprofit sector. *Administration in Social Work*, *35*(4), 364–388.
MacIndoe, H., & Barman, E. (2013). How organizational stakeholders shape performance measurement in nonprofits: Exploring a multidimensional measure. *Nonprofit and Voluntary Sector Quarterly*, *42*(4), 716–738.
Malmi, T., & Brown, D. A. (2008). Management control systems as a package: Opportunities, challenges and research directions. *Management Accounting Research*, *19*(4), 287–300.
Memon, M. A., Ting, H., Cheah, J.-H., Thurasamy, R., Chuah, F., Cham, T. H., & Cham, T. (2024). Control variables: A review and proposed guidelines. *Journal of Applied Structural Equation Modeling*, *8*(2), 1–11.
Miller-Millesen, J. L. (2003). Understanding the behavior of nonprofit boards of directors: A theory-based approach. *Nonprofit and Voluntary Sector Quarterly*, *32*(4), 521–547.
Moynihan, D. (2008). Advocacy and learning: An interactive-dialogue approach to performance information use. In W. Van Dooren & S. Van de Walle (Eds.), *Performance information in the public sector: How it is used* (pp. 24–41). Palgrave Macmillan UK.
Moynihan, D. P. (2009). Through a glass, darkly: Understanding the effects of performance regimes. *Public Performance & Management Review*, *32*(4), 592–603.
Moynihan, D. P., & Pandey, S. K. (2010). The big question for performance management: Why do managers use performance information? *Journal of Public Administration Research and Theory*, *20*(4), 849–866.
Nitzl, C., Sicilia, M., & Steccolini, I. (2019). Exploring the links between performance measurement and management in public sector organizations: A literature review. *Public Management Review*, *21*(5), 710–734.
Ouchi, W. G. (1979). A conceptual framework for the design of organizational control mechanisms. *Management Science*, *25*(9), 833–848.
Parent, M. M., & Deephouse, D. L. (2007). A case study of stakeholder identification and prioritization by managers. *Journal of Business Ethics*, *75*, 1–23.

Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. Harper & Row.
Saliterer, I., & Korac, S. (2013). Performance information use by politicians and public managers for internal control and external accountability purposes. *Critical Perspectives on Accounting*, *24*(7–8), 502–517.
Schein, E. H. (1985). *Organizational culture and leadership*. Jossey-Bass.
Schein, E. H. (2004). *Organizational culture and leadership* (3rd ed.). Jossey-Bass.
Scott, W. (1992). *Organizations: Rational, natural and open systems*. Prentice-Hall.
Scott, W. R. (1987). *Organizations: Rational, natural, and open systems* (2nd ed.). Prentice Hall.
Simons, R. (1995). *Levers of control*. Harvard University Press.
Speklé, R. F., & Verbeeten, F. H. (2014). The use of performance measurement systems in the public sector: Effects on performance. *Management Accounting Research*, *25*(2), 131–146.
Taylor, B. E., Chait, R. P., & Holland, T. P. (1996). The new work of the nonprofit board. *Harvard Business Review*, *74*(5), 36–38.
Vandenbosch, B. (1999). An empirical analysis of the association between the use of executive support systems and perceived organizational competitiveness. *Accounting, Organizations and Society*, *24*(1), 77–92.
van der Kolk, B. (2022). Performance measurement in the public sector: Mapping 20 years of survey research. *Financial Accountability & Management*, *38*(4), 703–729.
Van Dooren, W., Bouckaert, G., & Halligan, J. (2010). *Performance management in the public sector*. Routledge.
Van Helden, G. J., Johnsen, Å., & Vakkuri, J. (2012). The life-cycle approach to performance management: Implications for public management and evaluation. *Evaluation*, *18*(2), 159–175. https://doi.org/10.1177/1356389012442978
Verbeeten, F. H., & Speklé, R. F. (2015). Management control, results-oriented culture and public sector performance: Empirical evidence on new public management. *Organization Studies*, *36*(7), 953–978.
Verschuere, B., & De Corte, J. (2014). The impact of public resource dependence on the autonomy of NPOs in their strategic decision making. *Nonprofit and Voluntary Sector Quarterly*, *43*(2), 293–313.
Westphal, J. D., & Zajac, E. J. (1997). Defections from the inner circle: Social exchange, reciprocity, and the diffusion of board independence in US corporations. *Administrative Science Quarterly*, *42*, 161–183.
Zammuto, R. F., & Krakower, J. Y. (1991). *Quantitative and qualitative studies of organizational culture.Research in organizational change and development*. JAI Press.

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