

The Role of Dialogic Accounting in Successful Performance Measurement and Management Systems

Sara Melo

Queen's Business School
Queen's University Belfast
Riddel Hall
185 Stranmillis Road
Belfast
Northern Ireland
BT9 5EE

s.melo@qub.ac.uk

Tel: +44 (0)28 9097 4820

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ABSTRACT

This article examines how the adoption of a dialogic accounting approach influenced the features of and the processes associated with the design and implementation of two successful performance measurement and management (PMM) systems at a large public teaching hospital. Findings report on data from 87 semi-structured interviews. The adoption of a dialogic accounting approach fostered the tailoring of the PMM systems' features to the hospital and to its departments, encouraged the bottom-up involvement of staff, and helped to manage the tensions and paradoxes that arose during the design and development of the PMM systems. The article advances the research on public governance and accountability by providing one of the first empirical accounts of how the adoption of a dialogic accounting approach to PMM fostered the internal legitimacy and effectiveness of the PMM systems, which in turn reinforced the adoption of dialogic accounting and the continuous improvement of the PMM systems.

Track 24: Performance Management

Word count: 6991 words

INTRODUCTION

Since the 1980s, performance measurement and management (PMM) systems became widely adopted as part of New Public Management (NPM) reforms (Garengo and Sardi, 2021; Lapsley and Miller, 2019), given the NPM emphasis on measuring performance as a way of ensuring accountability and increase efficiency and effectiveness (Hood, 1991; Osborne, 2006). Yet, PMM is still a big challenge for public services (Arnaboldi et al., 2015), often resulting in unsatisfactory or even undesired effects (Steccolini et al., 2020).

The current contexts require PMM systems that favour learning and adaptation (Bourne et al., 2018), and decentralised decision-making autonomy (French et al., 2021). However, PMM systems are still strongly influenced by their roots in the control systems literature (Bititci et al., 2018), thus emphasising the use of information to inform centralised decision-making and control (French et al., 2021). The dominant PMM system paradigm is in line with mainstream accounting which is monologic in approach as it prioritises the needs of investors (Grossi et al., 2021) while ignoring or failing to appreciate the contextualised nature of knowledge and the involvement of multiple stakeholders (Brown, 2009). Although there have been calls for a dialogic approach to PMM systems (e.g. Rajala and Laihonon, 2019), facilitating a more participatory form of decision-making and accountability (Brown, 2009), including the co-creation of performance indicators by multiple stakeholders (French and Mollinger-Sahba, 2021), little is known about the dynamics associated with the development of a dialogic PMM system. This article aims to fill this gap by seeking to address the research question: *How does the adoption of a dialogic accounting approach contribute to the design and implementation of a successful PMM system?* To answer it, the article draws on the in-depth study of two successful PMM systems developed by a large public teaching hospital located in Portugal: i) a falls reporting and prevention system, and ii) a business intelligence system.

THEORETICAL BACKGROUND

Dialogic accounting

In the last two decades a shift from a monologic to a dialogic approach to accounting has been identified as a key requirement for facilitating more collaborative ways of decision-making and accountability (Brown, 2009). Mainstream accounting is considered monologic in that it favours investors as these are identified as the primary target users of financial reports, hence overlooking other stakeholders' needs (see e.g. Brown, 2009; Brown and Dillard, 2015). Additionally, the facts are considered to 'speak for themselves', thus refusing to acknowledge or underplay the social situatedness of knowledge (Brown, 2009).

In contrast, dialogic accounting challenges the shareholder focus of conventional accounting (Brown and Dillard, 2015) by recognizing the existence of multiple stakeholders and the need to consider different perspectives other than the finance capital's point of view as the standard for accounting objectivity (Brown, 2009). Dialogic accounting does not see capital markets and investors as priority stakeholders (Bellucci et al., 2019). Rather, it adopts a 'polyvocal citizenship perspective' (Gray et al., 1997) by providing a wider range of interested constituencies with a voice and agency in the organization (Gray et al., 1997; Bebbington et al., 2007), therefore favouring a decentred approach to governance and decision-making (Brown and Dillard, 2015).

Research has explored the role of dialogic accounting in a series of settings such as participatory budgeting (Aleksandrov et al., 2018; Célérrier and Cuenca Botey, 2015), reporting (Brown and Dillard, 2014; Bellucci et al., 2019), and management accounting and control systems (Pärl, 2014).

However, findings indicate that although these initiatives use dialogic rhetoric, in reality they often result in limited dialogic effects (e.g. Aleksandrov et al., 2018; Brown and Dillard, 2014) or in the engagement of a minority of participants (Célérier and Cuenca Botey, 2015), due to the influences of the embedded cultural-political logics (Jayasinghe and Wickramasinghe, 2011; Brown and Dillard, 2014) in inhibiting the potential for real change. Whereas this highlights the role of internal actors in the implementation of dialogic accounting tools (Grossi et al., 2021), the focus of research has almost solely been on external stakeholders. Exceptions include Päril (2014) who explored how companies use management accounting and control systems for dialogical communication. As far as the authors are aware, no study has explored the role of dialogic accounting on the design and implementation of PMM systems.

PMM systems in the public sector

The applicability of PMM systems in public sector organisations has been considered a challenge given the diversity among them, the key role of both social purpose and stakeholders' expectations towards PMM, and the distinctive characteristics and aims of public sector organisations when compared with for profit companies (Moura et al., 2019). As Sinuany-Stern and Sherman (2014: 5) point out, public sector organizations, rather than maximizing profit, have "primary objectives related to optimizing other measures of performance, such as: minimizing costs while maximizing service provided, managing risk and performance time, selecting preferred operating methods, and/or allocating resources effectively". In the public sector, the political environment also creates ambiguity in performance measurement, given the various perspectives, meanings, intentions, and conflicting goals (Oppi et al., 2022), which result in a lack of clear objectives and reduce the possibilities of standardization and measurability (Yetano et al., 2021).

Extant research on PMM systems in the public sector has focused on exploring their effectiveness rather than understanding their design and implementation (Moura et al., 2019), with several studies concluding that performance measurement does not necessarily drive performance improvement (Smith et al., 2021). Yet, the design of PMM systems is crucial, as the fit between the PMM system and the organisational conditions is key towards minimizing the unintended consequences of PMM systems (Franco-Santos and Otley, 2018) and it also affects organisational performance (Nitzl et al., 2019). In addition, organisations face the emergence of internal complexities while implementing and using PMM systems (Okwir et al., 2018).

PMM systems and dialogic accounting

Across all sectors, PMM literature has widely identified the need to obtain staff acceptance and a fit between PMM systems and organisational characteristics as key determinants of PMM systems success (Franco-Santos and Otley, 2018; Di Luozzo et al., 2021; Nitzl et al., 2019). As Lewis and Triantafillou (2012: 604) emphasize "[i]t seems obvious that using the knowledge of experts to create and apply performance measures should create more trust and ensure that the criteria used are relevant and appropriate to those professionals involved in doing the work." Nevertheless, scant attention has been given to the role of dialogic accounting in engaging staff in the design and implementation of PMM systems and in attaining their sustained success. Some theoretical articles provide useful insights to understand the relevancy of dialogic accounting to PMM systems (e.g. Dillard and Roslender, 2011). However, they do not advance the knowledge on how the complications in performance information use are intertwined (Rajala et al., 2018) or the dynamics of dialogic performance management (Rajala and Laihonon, 2019), as understanding these require an empirical analysis of real life social processes (Rajala et al., 2018).

In the public sector, there is an increased need for dialogic PMM (Rajala and Laihonon, 2019) given the lack of objectivity of performance information (Moynihan, 2008), the ambiguity associated with public sector management (Oppi et al., 2022; Vakkuri, 2010) and the significant number of actors and interpretations of performance (Laihonon and Mäntylä, 2017). As Moynihan (2008) points out, performance information is not unambiguous, and interested actors interact in a dialogue to determine its meaning. According to Rajala and Laihonon (2019: 145), dialogic performance management exists when dialogue about performance is embedded into “performance management to set objectives, direct employees, define metrics, produce performance information via measuring, and/or determine actions to improve performance”. Given that performance dialogue needs to be integrated in management practices, dialogic performance management is thus strongly dependent on public managers’ choices and power (Rajala and Laihonon, 2019; Rajala and Laihonon, 2022; Laihonon and Mäntylä, 2017), but little is known on how dialogic performance management is orchestrated in practice (Rajala and Laihonon, 2019).

METHODOLOGY

Research setting and design

The article uses data from two research projects carried out in 2009 - 2010 (on a falls reporting and prevention system) and in 2023 - 2024 (on a business intelligence system) in one large public teaching hospital located in Portugal, recognised in the country as a leading hospital in both areas. The research adopted a case study approach as it allows investigating a contemporary phenomenon in-depth in its real-life context and it is particularly useful to address ‘how’ and ‘why’ research questions (Yin, 1999).

The hospital always placed significant importance on the quality of care provided. In 2000, a change in board members fostered the adoption of a more formalized approach to continuous quality and patient safety (Q&PS) improvement. This resulted in the implementation of a series of initiatives, including the restructuring of the patient safety incidents reporting system in 2004/2005, alongside a sensitization campaign for the importance of reporting incidents (e.g. patient falls, adverse drug reactions, pressure ulcers, etc.) and the subsequent creation of several working groups, including a falls prevention group, to address the main patient safety incidents. Given that falls were the most commonly reported incident, the falls prevention group created a structured form specifically for falls reporting to obtain more detailed knowledge regarding falls. Based on this information, the group implemented a series of projects to help staff, but mostly ward clinicians, to manage patient falls. These included a falls risk assessment scale developed by Janice Morse and known in the literature as the Morse fall scale (Morse, 1997) and the procedures to be put in place according to the level of risk indicated by the scale.

In 2010, through a partnership with the computer science department of a Portuguese University (henceforth University A), the hospital started to develop the building blocks of what would become a business intelligence (BI) system, integrating data from several of the hospital’s information systems to enable staff with a top/middle management role to easily access a range of key performance information and indicators, daily updated. Over the years, the BI system has been continuously subject to changes and improvements and is now considered a key strategic decision-making tool.

Data collection

Primary data were collected by the first author through a total of 87 in-depth semi-structured interviews conducted with 90 interviewees from June 2009 to February 2010 (first research

project – 46 interviews with 49 interviewees) and then from December 2023 to July 2024 (second research project – 41 interviews) with an average duration of 51 minutes. Interviewees included 34 nurses, 18 doctors, 14 hospital managers, eight administrative staff, five engineers, four nurse aides, two health and safety technicians, two social workers, a laboratory technician and a radiology technician, from several clinical and non-clinical departments across the hospital, plus an academic from the computer science department of University A involved in the development of the BI system. The two projects involved different interviewees. During the first project, one nurse was interviewed twice given their key role in the hospital's Q&PS projects. The interview questions of the first research project explored the factors that led to the increased importance given to Q&PS improvement, initiatives adopted to measure and manage patient falls, and their design and implementation processes. The second research project focused on exploring the design and implementation processes of the hospital's business intelligence (BI) system and its use in decision-making and planning. During the interviews for the second project, some interviewees mentioned the ongoing success of the falls reporting system and falls prevention initiatives, since 2010, as the interviewer informed the interviewees about the first project.

All but four interviews (all in the first project) were individual interviews. The four interviews with two professionals took place due to logistics such as office sharing. Whereas in joint interviews the pre-existing relationship between interviewees can impact their interaction in the interview, the interviewer did not feel that this took place. Interviewees were selected following a snowball approach whereby interviewees were asked to indicate other potential interviewees and so on. All but two interviews (both in the first project) were audio-recorded and verbatim transcribed by the interviewer. In the non-recorded interviews, comprehensive hand-written notes were taken. Interviews took place inside the hospital and were conducted in Portuguese, the native language of all interviewees and of the interviewer. Ethics approvals were obtained from both the case study hospital and the University where the interviewer was based at the time each of the projects took place.

Data analysis

Interview transcripts were inductively analysed following the approach proposed by Gioia et al. (2013). In a first step, interview transcripts were coded and codes were grouped into themes using interviewees' own terms to help understand their experiences. The fifteen themes were then grouped in four first order concepts, still closely informed by interviewees' wording. Drawing on PMM literature, in a second step it was identified that the four first order concepts could be clustered into two second order themes, corresponding to two key dimensions of a PMM system: 'features of the PMM system' and 'processes of PMM system design and further development', and that the dynamics between these impacted the success of each PMM system. In the third and final step the two second order themes were distilled even further into two aggregate dimensions, leading to the conclusion that a successful PMM system results from its ability to 'secure internal legitimacy' and be 'dialogic', two aggregate dimensions that are informed by the PMM systems and dialogic accounting literatures. The data were analysed in Portuguese and only the relevant quotations were translated into English and later back translated by the interviewer to ensure the anonymity of interviewees and avoid distortions in the meaning.

FINDINGS

Data from the interviews highlight that the success of both PMM systems is rooted in the dialogic accounting approach adopted throughout their design, implementation, and further development.

By enabling the tailoring of the PMM systems to hospital staff needs through effective processes, the dialogic approach fostered the internal legitimacy of the two PMM systems and of their coordinating teams, which in turn reinforced the dialogic approach, therefore creating a virtuous cycle of PMM systems continuous improvement, making them increasingly more useful and successful.

The next sections unpack these dynamics by discussing how they influenced the features of, and the processes associated with the implementation of both PMM systems. Table 1 provides the data structure, summarizing the findings.

Insert Table 1 about here

Features of the PMM systems

During the interviews it was very clear that a core feature of the case study's PMM systems under study was that their elements were tailored to both the hospital and its departments, as discussed in the next two sections.

PMM systems tailored to the hospital

Although the two PMM systems were *designed based on multiple sources, they were adapted to the hospital's context*. Throughout the interviews on the BI system, almost all interviewees mentioned its development through a partnership with University A as one of the BI's main advantages, with several interviewees comparing it with the better fit of 'custom-tailored clothes' over 'ready-made clothes'. Likewise, although the falls prevention group members searched the internet, literature, and other hospital's practices to obtain ideas for procedures as falls are a hospital problem worldwide, the group adapted the initiatives to the hospital's context:

Our basis [for falls prevention initiatives] was Janice Morse's literature [...]. But of course, to adapt a little bit to our population, we took advantage of other studies and other initiatives that have been implemented in other hospitals, for example in terms of interventions [to be put in place according to the level of risk indicated by the Morse fall scale]. We have been taking advantage of what best suited our reality. (Member of the falls prevention group)

The hospital's *IT systems* are another core element of the hospital's tailored PMM systems, which contributed to their effectiveness. At an organisational level, interviewees for the BI project indicated that the creation of a platform concentrating in one place the information of the numerous hospital's information systems enabled the later development of the BI system, as these systems had been developed in an isolated way by different entities and therefore had many limitations in terms of communication and information exchange between them,

What we did many years ago [...] to have information sharing and to be easier when there is a need for information; was to design a platform in partnership with University [A] and after that, the indicators also began to emerge, as it is from this platform that we obtain a lot of information. (Member of a BI development working group)

At the level of day-to-day practice, the hospital's IT systems also facilitate PMM, for example, through prompting clinicians to evaluate a patient's risk of fall every 48 hours – a feature which was developed inside the hospital,

In terms of applying the [fall risk assessment] scale, I have no doubt that it is not difficult for them [nurses] to apply it every 'X hours' because when the patient enters [the hospital ward, the system] says it has [to be reevaluated] every 48 hours, this is predefined and the system will ask, and if it will ask the [nurse] will do. (Nurse)

Although the BI system and the falls prevention system are very different, both benefitted from the same hospital's organisational structure and followed similar approaches of organising the coordinating teams and working groups involved in their design. The Quality Management Department (QMD) was created to centralise all the offices related with quality and risk (clinical and non-clinical) impacting staff and patients. Similarly to the other hospital departments, the fact that the QMD directly reports to the hospital board fosters a sense of legitimacy and respect for this department, thus contributing towards the acceptance of its procedures,

At the time [i.e. when the hospital's focus on quality improvement became more formalized] [...] the first thing we thought was that for us to be taken seriously we had to equate ourselves in terms of structure to what existed in the other services, i.e. we had to have a department, we had to have services, we had to be connected with the top. (Member of the QMD)

Furthermore, the management of the patient safety incidents reporting system by the QMD enables the department to better identify the need for action and coordinate its implementation as the QMD receives all incident notifications. This is particularly useful in the case of projects that are common to or involve several services,

Some of the [incident notifications] are transversal. Although they [were reported] by that service, they have a transversal solution that takes place in this service, in that [service], and in the other [service]. (Nurse)

Alongside the centralisation of all quality improvement projects within the QMD, the QMD created working groups (e.g. falls prevention group, pressure ulcers group, etc.) focusing on specific quality issues and appointed local clinical risk managers (a nurse and a doctor in each clinical service) to act as a bridge between the QMD and each clinical service.

Likewise, the coordination of the BI system is under the Department of Planning and Management Control (DPMC), which is responsible for the information processing within the hospital and directly reports to the hospital's board. Similarly to the QMD, whenever staff have a suggestion or a doubt regarding the BI, they need to contact the DPMC. Although all aspects related with the BI are managed by the DPMC, whenever there is the need to create new indicators or functionalities in the BI, this department creates working groups with staff that will use those features to collaborate in the development. Additionally, the DPMC is in close contact with each clinical service through their interlocutor nurse/doctor for the area of information systems.

The *top management commitment* was perceived by interviewees as a key element of both PMM systems. In fact, the BI system was initially developed to address the information needs of top management and since the beginning has had the hospital board's full support,

In the beginning this [the BI system] was much more designed for top management, basically for the five main production lines that the hospital has, right?! [...] hospitalizations, consultants' appointments, outpatient treatment sessions, surgeries, and accidents and emergency episodes. [...] The hospital receives money [from the Ministry of Health] according to these five lines. (Nurse)

Whereas, by contrast, the falls prevention system started in the QMD primarily to help wards to operationally manage falls, as a member of the QMD department mentioned, the support of the hospital board was also crucial,

[Talking about the factors that facilitate the implementation of a quality and patient safety project] [Top] Management has to want it [...] and that's the only way things will flow, I think. (Member of the QMD)

Both PMM systems benefited from a *well-defined and clearly communicated hospital strategy* of continuous quality improvement which contributed to their embeddedness in practice. As an interviewee mentioned in the context of the falls prevention system project,

[Previously], within each service, it was each team trying to improve what was possible to improve within that service; it was not from the point of view of institutional policy, so to speak. Now [...] the services have written [quality] objectives. (Non-clinician)

Similarly, regarding the advantages of the BI system, an interviewee mentioned,

If we know what our goal is, if we know where we are, and to what extent we are moving towards the goal that is defined, ahh we are going to make adjustments, isn't it?! [following] a Plan-Do-Study-Act cycle, isn't it?! (Hospital manager)

Finally, the case study's PMM systems were also *aligned with the hospital's culture* of collaboration and trust. Although in certain cases, the BI system allows managers to see individual and team performance, which can be useful to support staff development, its aim is not to foster internal competition as this is not the culture of the hospital,

We don't want [to disclose to all staff in a service/department] that level of detail, we want a global average, we don't want to say that this staff member is 'Cristiano Ronaldo' and this one is 'Messi'. (Top manager of a clinical/surgical department)

Likewise, in line with the culture of trust, if an error occurs, the QMD sensitises/trains the entire professional group on how to conduct the procedure in the correct way rather than single out a specific individual as incident reporting is not used in a punitive way and staff are not individually targeted when something goes wrong,

If I have many notifications of mislabelling or lack of identification of [lab] samples, the professional group that will be sensitized is nursing, or technicians, in case if it is at the hospital collection centre, and we are not going to look for the professional who made the mistake because we are not interested in sensitizing that professional, we are interested in sensitizing the group. Obviously if errors continue to happen, eventually you can go to the professional. (Member of the QMD)

PMM systems tailored to the departments

Among the interviewees for the two projects, on the one hand there was a consensus that the effectiveness of each PMM system resulted from it being designed following a hospital wide

perspective by seeking the views of multiple staff, rather than just being designed for a single department. Given that both PMM systems are useful for several hospital departments, this facilitated a broader staff awareness and engagement with the PMM systems and their development and implementation. Nevertheless, on the other hand, interviewees also recognised the need for the PMM systems to be tailored to the departments as it is important to acknowledge the differences across them. In line with this, both PMM systems were rooted on the idea of *performance as a multi-faceted concept*, which had a key impact on their success. As an interviewee pointed out regarding the BI,

In the beginning, the BI system was informed by the contract [with the Ministry of Health] [...] then it evolved in different areas [e.g.] in the area of the surgery, in the area of outpatient treatments. Each one had specificities that were incorporated [resulting in different indicators]. (Nurse)

In relation to falls prevention, interviewees indicated that whereas there are several factors that contribute to falls (e.g. slippery floor, patient's lack of familiarity with the environment, patient's pathologies and medication, etc.), which are common across hospitals, including the case study hospital, still there are key differences among clinical services. As the quote below from a member of the falls prevention group highlights, the group acknowledged these differences and adapted the falls prevention system accordingly,

We introduced exclusion criteria for fall risk assessment. People complained that it made no sense to assess the risk of fall with a scale in certain types of patients [e.g.] people who have been in coma for years. It doesn't make sense; they only fall if we let them fall. (Member of the falls prevention group)

The perception of performance as a multi-faceted concept also facilitated the hospital's focus on performance management, rather than merely on performance measurement, as well as the adoption of an overarching perspective of performance taking into consideration the short, medium and long-term impacts. For example, in the BI project, several interviewees with a departmental or clinical service management role mentioned that whenever they saw an indicator with an unexpected figure, they would talk with the clinicians of the respective service to try to understand what happened. Similarly, in terms of falls prevention, the hospital's aim was to improve the patient's rehabilitation, and the consequent prevention of future falls, rather than just reducing the number of reported falls, i.e. in a statistical way and in the short term.

Related with the importance of PMM systems to be tailored to the departments, interviewees highlighted the *need for PMM systems to make sense in practice* for staff to be willing to use them,

[Talking about the factors that have contributed/created barriers to the development of the BI system] I think that the fact that some things were built on demand, according to what people wanted was very motivating for people to start using and take advantage of. (Hospital manager)

Additionally, as one interviewee for the falls prevention system project explained, as staff are too busy, if PMM procedures do not make sense to them or they do not see their importance, they will not implement them and ultimately managers will lose their authority,

[Talking about staff applying the fall risk assessment scale and placing a pink wristband on the patients identified as having a high risk of falling] That [the pink wristband] alerts

professionals and I am honest, I think professionals adhere because of that; because [if] at this stage I give any instruction to do anything further, staff no longer have the capacity to do it [...] and thus giving orders for the sake of giving ends up resulting in the loss of authority and my authority is discredited because they don't have the capacity [to carry out additional tasks] (Chief nurse)

Alongside the features of the two PMM systems, the processes associated with their design and further development played a significant role in their effective use.

Processes of PMM systems' design and further development

As mentioned above, a key characteristic of the two PMM systems was the emphasis that was given to staff involvement and active participation in their design and development. As discussed next, in practice this translated in the fostering of staff bottom-up involvement and the consideration of the contextual intricacies in the management of the tensions and paradoxes that arose during the design and implementation of the PMM systems.

Staff bottom-up involvement

The processes of PMM systems' design and further development were rooted on the *recognition of staff skills and knowledge and their active involvement*, as they were considered as being more knowledgeable about what can be improved at local level. In both PMM systems, staff were motivated to communicate with the respective PMM system coordinating department or working group, directly or through the networks of local interlocutors (i.e. local clinical risk managers | information systems interlocutors), the needs of their department/service (e.g. refurbishment needs | ideas for new BI system indicators and functionalities) and their feedback about what can be improved. Additionally, the QMD working groups, such as the falls prevention group, and the DPMC also regularly contacted the hospital's departments/services to obtain feedback, for example when new procedures were being designed/piloted, as they recognised the value of hearing the perspectives of who is on the ground.

The *PMM systems' development driven by users' doubts and feedback* further increased their usefulness, therefore further strengthening their legitimacy and the dialogic accounting approach adopted, as exemplified by the quote below regarding the BI system,

[Talking about the BI development] from all the projects that we have had here at the hospital, the most successful ones have been those projects in which periodic weekly meetings were held [between the IT development team and the target users of the feature being developed] even if it is just to say 'look, everything is fine, see you next week', 'look! now we need to pay attention to this, this, and this' (Member of a BI development working group)

Managing tensions and paradoxes

The way the QMD and the DPMC managed the tensions and paradoxes associated with the design and development of the falls prevention system and of the BI system, respectively; also significantly contributed to their success. An example is how the QMD and the DPMC coordinated what is done at what organisational level. On the one hand, as discussed above, both recognised the importance of tailoring procedures to the departments due to the differences in the context and hence gave significant autonomy to local staff in shaping the PMM systems. In doing so, the processes of PMM systems' design and further development valued a *decentralised*

autonomy. Indeed one of the key reasons for developing the BI system was to enable mid and top managers to independently access real time information.

On the other hand, however, in order to ensure consistency in the application of the procedures and/or registering information, both the QMD and the DPMC adopted a *centralised auditing* approach,

[Talking about how the QMD's projects are implemented in the hospital] we receive the information and then we have to transmit it to colleagues and its implementation is official let's say, from that moment on [...] then there is a group within the hospital that is responsible for auditing the nursing records. (Nurse, local clinical risk manager)

[Talking about the importance of the quality of records for the BI] that is why we have data auditing,.. to ensure that all is correct, isn't it?! that there is consistency, it is very important. (Member of a BI development working group)

In line with this, the QMD and the DPMC were able to adopt both a *standardized* and *contextualized* approaches to the respective PMM system, which underlied their success,

[Talking about the falls prevention group] I think that it is good that there is someone who is concerned [with falls prevention]. The issue has to be treated in an overarching way in the hospital and consistently [...]. Then, naturally the outcomes and what to do with the data that is being collected has to be adapted to each [clinical] service. (Doctor)

[Talking about the development of new BI indicators] there are indicators that are horizontal, that are immediately made available for all services [then] the DPMC together with the IT team and the hospital board plans, i.e. assesses what makes sense, what doesn't, because sometimes there are requests [for indicators/functionalities by departments] in which the cost-benefit is not worth it, right?! (Member of a BI development working group)

The quote above also highlights the need for the PMM systems' coordinating teams to be able to manage the tensions between *what is ideal* versus *what is possible given the existing resources*, which is particularly important in the context of a national health service's public hospital.

The dialogic accounting approach adopted by the hospital also led the QMD and the DPMC to be able to *define the procedures* of the PMM systems while also *being open* to the possibility of changing the same, in case it was recognised that they could be improved based on staff suggestions,

[Talking about the definition of the levels of risk of falling that resulted from the application of the fall-risk assessment scale] We had low, medium and high risk [of falling] and now we have low, high and no risk. [The falls prevention group changed] because sometimes we had young patients [...] who were completely autonomous and then we had to put in place interventions that weren't adequate. Just because they had a secondary diagnosis and had a history of falls [...] then the application of the scale indicated that we had to supervise, accompany the patient when he/she walks, when at that time there was no need for such interventions. (Nurse)

Finally, interviewees also mentioned the importance of *adopting the right timings for change*. As the quote below highlights, this would help staff to appropriately perceive the procedures and maximise their compliance,

Staff adhere [to the falls prevention measures] if they are motivated [...] if the reasons why they are being implemented are properly explained and then if there is coherence [...]. We cannot tell staff we are implementing a [fall risk assessment] scale [to help prevent patient falls] but we keep the architectural barriers [that contribute to patient falls, e.g. slippery floor coverings] (Nurse, local clinical risk manager)

Adopting the right timings for change was also crucial for example to ensure that staff would have time to give feedback which was vital for the development of the PMM systems,

[Talking about the importance of the users having time to test the new BI system's indicators and features] Then it leads to a vicious cycle. We can have many people programming but if then there is no test, no feedback [from the users due to the lack of time], the people who are programming then become demotivated and start doing something else, leading to users' perceptions that the IT team is slow in programming. (Member of a BI development working group)

DISCUSSION AND CONCLUSION

PMM systems have been subject of great interest by the public administration research, which has also identified their many challenges (Arnaboldi et al., 2015) and limited positive outcomes (Steccolini et al., 2020) as a result of their reliance on the control systems literature and its monologic approach (Bititci et al., 2018). As a way forward, studies have acknowledged the need for a paradigm shift and the consequent adoption of dialogic PMM systems that support learning and adaptation, based on decentralized and more participatory forms of decision-making involving multiple stakeholders and valuing the contextualised nature of knowledge (Rajala and Laihonon, 2019; French and Mollinger-Sahba, 2021).

Notwithstanding the recognised relevance of dialogic PMM systems, the organisational dynamics associated with their effective design and implementation have been understudied. To address this gap, the study focused on the research question of how the adoption of a dialogic accounting approach contributes to the design and implementation of a successful PMM system by analysing two successful PMM systems developed by a Portuguese public teaching hospital: i) a falls reporting and prevention system, and ii) a business intelligence system.

This article makes three key contributions. First, as far as the authors are aware, it is the first article providing an empirical account of the design and implementation of an effective PMM system truly informed by a dialogic accounting approach. This study thus contributes to the understanding of both the features of and processes associated with the design and implementation of dialogic PMM systems and the issues related with their utilisation, including how they can be developed further. Findings from the case study indicate that employing a dialogic accounting approach contributed to the internal legitimacy of the PMM systems, which in turn motivated staff to continuously be involved in the dialogic accounting processes embedded in the development of the two PMM systems, therefore further strengthening the PMM systems' internal legitimacy. In other words, the adoption of a dialogic approach resulted in a virtuous cycle of PMM systems' implementation and improvement as well as in the institutionalisation of continuous performance dialogue processes (Rajala and Laihonon, 2022). In doing so, this is also the first article to shed light on the middle/long-term impacts of adopting dialogic PMM systems, as previous studies reported on initiatives that though adopting dialogic rhetoric, resulted in little dialogic impacts (Aleksandrov et al., 2018; Brown and Dillard, 2014; Célérier and Cuenca Botey, 2015).

Second, the article demonstrated that the way the structural elements were intrinsically intertwined with the everyday actions (Visser, 2024) was crucial for the success of both PMM systems. The findings highlight that whereas some aspects of the design and implementation of the two dialogic PMM systems were directly related with their development and implementation processes (e.g. adapting ideas locally, involving staff, etc.) and therefore more operational, others were intrinsically linked with the hospital (e.g. organisational structure, shared strategy, conceptualisations of performance, organisational culture, etc.) and thus more structural. In the hospital, the operational and the structural aspects of the two dialogical PMM systems were fully aligned therefore contributing to their success. For example, the existence of the Quality Management Department (QMD), centralising all the projects related with quality and patient safety and the Department of Planning and Management Control (DPMC) centralising the information processing within the hospital, resulted in two performance dialogue hubs, respectively connecting the different quality management | management information dialogues together (Rajala and Laihonon, 2022). By facilitating letting ‘others’ into the conversation (Brown, 2009) the two departments fostered the establishment of ‘dialogic awareness’ processes (Manetti et al., 2021) and the adoption of a social constructionist perspective of performance information (Moynihan, 2008). The deliberative approach to dialogic accounting (Brown, 2009) together with the recognised expertise of the QMD in quality management matters and the DPMC on the BI system, in part resultant from their dialogue with hospital staff, increased QMD’s and DPMC’s legitimacy as an ‘obligatory passage point’ (Callon, 1986) in relation to quality management, and management information systems aspects, respectively. This further reinforced their legitimacy and consequently the quality of the two departments’ initiatives, including the PMM systems, as staff were engaged in their projects.

Similarly, the hospital had a well-defined strategy of continuous quality improvement that was espoused by all staff, thus facilitating the recognition of intersecting interests and the creation of communities (Bebbington et al., 2007) within the hospital. Indeed, in the hospital, staff from different professional groups worked collaboratively towards the design, implementation and improvement of the PMM systems, which differs from extant studies that found evidence of management accounting and control systems being contested terrain between different groups within the same organisation even at the point of these attempting to manipulate information to their advantage (Macintosh, 1995). As Macintosh (1995) points out, when there are fundamental dialectical contradictions between the objectives of different groups within an organisation, these are also manifested in management accounting systems which become a vehicle of organisational struggles hence negatively impacting their outcomes.

Third, the findings contribute to the understanding of the impact of organisational cultural-political logics (Jayasinghe and Wickramasinghe, 2011; Brown and Dillard, 2014) and the role of internal actors in the adoption of a dialogic approach (Grossi et al., 2021). Although accounting literature tends to idealise the roles of accounting in organisations and society (Jayasinghe and Wickramasinghe, 2011), as Smith and Bititci (2017: 1210) point out, PMM systems have two interlinked dimensions. On the one hand, performance measurement refers to technical controls and include activities such as “developing metrics, target setting, collecting, analysing and reporting performance information, and interpreting and assessing performance differentials”. On the other hand, social controls include the “cultural and behavioural routines that define how we use the performance measurement system to manage the performance of the organisation”, therefore emphasising the crucial role of the social on performance management. Indeed, the main finding of Rajala’s et al. (2018) study involving public managers in three Finnish

municipalities was that mental models, motivation, power, organizational culture and structure, and social rule system were factors causing challenges for performance dialogues in the three studied organizations, hence demonstrating the importance of aligning the PMM dialogue with the organisation's context. By contrast, in the case study hospital, the findings indicate that the fact that the PMM systems reflected the hospital's extant norms and values contributed to their legitimisation and consequently their success (Dillard and Roslender, 2011). For example, the QMD and the DPMC rooted their projects in the hospital's culture of collaboration and trust and acknowledged the differences across departments. They also considered the various professional groups and their needs, skills and expertise as well as pondered on the right timings for change, etc., which significantly contributed to the PMM systems success.

The article focuses on the findings from a single hospital and therefore has the limitations in terms of generalisability associated with the use of qualitative single case studies.

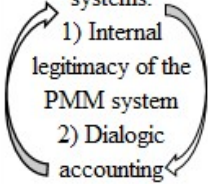
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Table 1. Data structure

Themes	1 st order concepts	2 nd order themes	Aggregate dimensions
- PMM systems designed based on multiple sources but adapted to the hospital - IT systems - Organisational structure, PMM systems' coordinating teams, and working groups - Top management commitment - Well defined and clearly communicated continuous quality improvement hospital strategy - PMM systems aligned with the hospital's culture - Performance considered as a multi-faceted concept - Need for PMM systems to make sense in practice - Recognition of staff skills and knowledge/active involvement of staff in the design and implementation of PMM systems - PMM systems development driven by users' doubts and feedback - Decentralised autonomy vs. central coordination/auditing - Standardization vs. Contextualisation - What is ideal vs. existing resources - Defining procedures vs. being open - Temporal tensions: right timings for changes	Tailored to the hospital	What: Features of the PMM systems	Successful PMM systems:  1) Internal legitimacy of the PMM system 2) Dialogic accounting
	Tailored to the departments		
	Bottom-up	How: Processes of PMM systems' design and further development	
	Managing tensions and paradoxes		