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Transparency in performance measurement systems: an exploration of rationales and diverging perceptions in the hospital setting

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Abstract

As a consequence of an increasing economization of the healthcare sector, hospitals need to accommodate professional and managerial logics. This paper studies transparency in performance measurement systems (PMSs) and its potential to combine these logics, with the ultimate aim of mitigating tensions commonly observed in hospitals. Based on a multiple case study of four German nonprofit hospitals, we shed light on the administrators' rationales to incorporate different levels of transparency into PMSs and illuminate the physicians' perceptions of these different levels and their responses to them. We find that the anticipation of whether PMS transparency will initiate a profit-centric constructive benchmarking, potentially alleviating tensions between administrators and physicians, or result in a rather destructive competition between departments, leading to tensions among physicians, is crucial in administrators' decisions on PMS transparency. We further detect gaps in the perceptions of administrators and physicians regarding transparency, anchored in issues related to controllability, reliability and comprehensibility. We find that PMS transparency may support physicians in combining professional and managerial logics at the departmental level with potentially adverse implications for departments' contributions to the organizational objectives. Overall, the evidence provided in this paper reveals the dual nature of PMS transparency, as it may raise tensions among physicians while simultaneously mitigating tensions between physicians and administrators. By exploring the multi-layered dynamics surrounding PMS transparency, we offer a more nuanced account of PMS transparency than prior research and conclude that PMS transparency may not be a panacea in hospitals.

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Extended author information available on the last page of the article

Keywords Transparency · Hospitals · Performance measurement systems · Enabling controls · Perception gaps

JEL Classification I19 · M49

1 Introduction

After decades of rising healthcare expenditures (The World Bank, 2023), hospitals in many countries have undergone regulatory reforms that strengthen efficiency and competition in the healthcare sector (e.g., Cardinaels & Soderstrom, 2013; Chapman et al., 2014). Correspondingly, hospitals have to reconcile the historically established professional logic with a more recent managerial logic that emphasizes the efficiency and profitability of the health services provided (Leotta & Ruggeri, 2017; Reay & Hinings, 2005). To ensure that physicians base their treatment decisions on medical *and* financial aspects, hospitals rely on performance measurement systems (PMSs) (Abernethy et al., 2007; Grossi et al., 2024; Lachmann et al., 2016), which hold physicians accountable for the financial consequences of their medical decisions (Gebreiter & Hidayah, 2019). Therefore, PMSs epitomize the financial accountability pressure associated with the managerial logic (Leotta & Ruggeri, 2017). PMSs thus tend to conflict with the professional logic prevailing in the past, when physicians experienced high professional autonomy (Laguecir et al., 2024; Levay et al., 2020), when their acting was propelled by their unique body of medical knowledge, shared professional standards and beliefs, and when self-control with little accountability to outsiders was predominant (Kerpershoek et al., 2016; Levay & Waks, 2009). Accordingly, a comprehensive body of research shows that the reliance on PMSs in hospitals is often surrounded by tensions between administrators and physicians (e.g., Begkos & Antonopoulou, 2022; Jones & Dewing, 1997; Leotta & Ruggeri, 2022).

In this paper, we shed light on transparency in PMSs and illuminate whether it is a suitable characteristic in the hospital setting that may alleviate the tensions surrounding PMSs. PMS transparency has received particular attention in the research stream on enabling controls, which aspire to foster autonomy and self-control and to support employees in opportunity-seeking and decision-making (e.g., Ahrens & Chapman, 2004; Naranjo-Gil & Hartmann, 2006). Faced with enabling controls, employees are expected to not feel restricted in their scopes of action, but rather empowered to better master their task and to contribute to the achievement of organizational objectives (e.g., Coyte, 2019; Wouters & Wilderom, 2008). Transparency constitutes an essential characteristic of enabling controls and refers to employees' access to information that provides a thorough understanding of how organizational units function and of the broader organizational context in which employees perform their tasks (Goretzki et al., 2018; Wouters & Roijmans, 2011).

Building on this notion of transparency, we suggest that PMS transparency may impart physicians a better understanding of how their departments, and

the hospital, function financially. We assume that physicians may mobilize this advanced understanding to negotiate resources with administrators (Morinière & Georgescu, 2022) and to control the achievement of targets in a self-organizing way. Moreover, PMS transparency may preserve discretionary leeway in operative decisions and underpin physicians' ideas for the further development of their departments. We argue that, in these ways, PMS transparency may maintain physicians' scope of action and thus restricts their professional autonomy to a lesser degree than PMSs with more limited transparency. Correspondingly, PMS transparency may combine the managerial logic and their inherent financial accountability pressure with the professional logic implying professional accountability and an emphasis on social and self-control.

However, the outlined benefits are only likely to arise when users perceive a PMS as supportive in mastering their tasks (e.g., Burney et al., 2017; Goretzki et al., 2018). In hospitals, administrators and physicians are likely to emphasize different objectives due to divergent work ideologies, values and rationalities (Mahlendorf et al., 2014; Oppi et al., 2019; Rautiainen et al., 2022). Therefore, perceptions of whether PMSs are supportive in mastering tasks are likely to differ between administrators as preparers and physicians as users of PMSs. Moreover, recent research shows that PMSs may mitigate the tension between physicians and administrators, but may initiate tensions among physicians (Morinière & Georgescu, 2022). We conjecture that PMS transparency may reinforce these dynamics.

In light of these considerations, the objective of our paper is to advance our understanding of PMS transparency in the hospital setting by exploring administrators' rationales for incorporating different levels of transparency into PMSs and by illuminating physicians' perceptions of these different levels and their responses. In this way, our study responds to two calls for research. The first is by Strauss and Tessier (2019), who call for research on diverging perceptions related to enabling controls. The second is by Grossi et al. (2024), who call for investigations of multiple actors and how they enact the divergent logics unfolding in organizations with diverse goals and values.

To pursue our research objective, we draw on data from a comparative case study of four nonprofit hospitals located in Germany, where the hospital sector has been reformed with the aim of increasing efficiency and competition (Holzhacker et al., 2015). In two of our case hospitals, the administrators aimed to incorporate transparency into the PMSs, whereas transparency was avoided by the administrators of the two other hospitals. Our findings indicate that the anticipation of whether PMS transparency will initiate a profit-centric constructive benchmarking with the potential to alleviate tensions between administrators and physicians or result in a rather destructive competition between departments, leading to tensions among physicians, is crucial in administrators' decisions on PMS transparency. In addition, concerns related to the controllability and reliability of performance measures may impede the establishment of PMS transparency. We also explore gaps in the perceptions of administrators and physicians with regard to transparency. Our findings suggest that, again, issues related to controllability, comprehensibility, and reliability culminate in these diverging perceptions. Eventually, we find that PMS transparency may support physicians in combining professional and managerial logics at the departmental

level with potentially adverse implications for departments' contributions to the organizational objectives. Overall, the evidence provided in this paper reveals "the dual nature of PMS transparency",¹ as it may raise tensions among physicians while simultaneously mitigating tensions between physicians and administrators.

The contribution of our paper is twofold. First, our findings add a fresh perspective on PMSs in the healthcare setting by conceptualizing PMS transparency as an alternative approach to the coercive PMSs, which have been the subject of prior research (Cardinaels & Soderstrom, 2013; Eldenburg et al., 2017). In particular, this study builds on the recent research by Morinière and Georgescu (2022), which demonstrates that PMSs may lead to tensions among physicians. Our findings indicate that PMS transparency implies the potential to give new impetus to the tension-filled dynamics surrounding PMSs in a hospital setting. The dual nature of PMS transparency explored in this study also adds a new perspective to prior research on PMS transparency, which has mostly focused on settings dominated by managerial logics (e.g., Ahrens & Chapman, 2004; Chapman & Kihn, 2009; Free, 2007). We show that in settings characterized by multiple logics, different professional backgrounds and considerable goal incongruence, PMS transparency may enable employees to prioritize their own objectives at the expense of organizational objectives, underlining goal congruence as a contingency of enabling approaches (Adler & Borys, 1996). Second, as we take the perspectives of preparers and users of PMSs into account, we enrich the concept of transparency by suggesting that it involves controllability, reliability and comprehensibility, calling for further attention with regard to the distinction between objective characteristics and subjective perceptions of PMS transparency (Mahama & Cheng, 2013; Strauss & Tessier, 2019). In a more general sense, our findings illustrate the shortcomings of framing PMSs as "the objective evaluation of reality" (Micheli and Mari, 2014, p. 148) and, in so doing, our study responds to calls for research centering the roles of subjects in the context of PMSs.

2 Background

2.1 PMSs in the hospital setting

The hospital sector in many countries has been subject to regulatory changes, which trigger efficiency and competition in the healthcare sector and imply consequences for the hospitals' objectives and structures (Cardinaels & Soderstrom, 2013; Eldenburg et al., 2017). A considerable driver behind this development is the introduction of Diagnosis-Related Group (DRG) reimbursement systems (Barouni et al., 2021; Chapman et al., 2014) that provide hospitals an ex-ante determined sum for the treatment of a patient. This amount is based on a specific diagnosis, irrespective of the actual treatment cost (Holzhacker et al., 2015; Tiemann et al., 2012). Hence, hospitals face pressure to provide their services with greater efficiency while maintaining or improving quality levels. As a consequence of these regulatory reforms, even non-profit hospitals place increasing emphasis on efficiency and profitability (Abernethy

¹ We thank an anonymous reviewer for suggesting this term.

et al., 2007; Cardinaels & Soderstrom, 2013), particularly since operating surpluses are important for investments in medical equipment (Lachmann et al., 2013, 2016).

In order to accommodate the managerial logic involved, with its focus on efficiency and profitability, hospitals frequently introduce PMSs (Cardinaels & Soderstrom, 2013; de Harlez & Malagueño, 2016; Leotta & Ruggeri, 2017). PMSs are expected to reinforce the internalization of a stronger business orientation among the physicians and correspondingly the combination of financial and medical considerations in their decision-making (Abernethy et al., 2007; Lachmann et al., 2016) as they hold physicians accountable for the financial consequences of their treatment decisions (Abernethy & Vagnoni, 2004; Kurunmäki et al., 2003; Mahlendorf et al., 2014). Therefore, PMSs epitomize a new financial accountability pressure based on the specification of performance targets and the comparison of the actual performance against these targets (Gebreiter & Hidayah, 2019).

The financial accountability pressure mitigates the professional autonomy that physicians had in the past. In line with the previously prevailing professional logic, hospitals traditionally relied primarily on professional controls that emphasized social and self-control embedded in the physicians' unique body of knowledge and shared professional standards and beliefs (Abernethy & Chua, 1996; Abernethy & Stoelwinder, 1995). Physicians assumed little accountability for the consumption of resources and controlled the quality of services themselves (Abernethy & Vagnoni, 2004; Reay & Hinings, 2005). It is hardly surprising, therefore, that a comprehensive body of literature provides evidence of negative attitudes among physicians to PMSs (e.g., Abernethy et al., 2007; Begkos & Antonopoulou, 2022; de Harlez & Malagueño, 2016; Jones & Dewing, 1997; Kerpershoek et al., 2016) and a decoupling of performance measurement and clinical decision-making (e.g., Chua, 1995; Kern et al., 2018; Kurunmäki et al., 2003; Lapsley, 2001). Prior research suggests that physicians perceive a monitoring based on financial performance measures as "surveillance" (Conrad & Guven Uslu, 2011, p. 52) and concludes that output controls may be "offensive" (Abernethy & Stoelwinder, 1995, p. 13) to them.

More recently, however, the literature has highlighted that physicians may not disregard PMSs per se, given that the achievement of financial performance targets is crucial for obtaining resources (Morinière, 2023). In particular, the case study by Morinière and Georgescu (2022) provides valuable insights into the dynamics of using performance measures in the hospitals. As the achievement of performance targets is essential for the distribution of financial and human resources, the physicians in the hospital studied mobilize performance measures for negotiating resources with the administrators. In so doing, they reach compromises with the administrators, yet tension is induced within the medical departments, given that the attainment of performance targets requires high work intensity and patient turnover with adverse effects on the quality of care.

In summary, the reviewed literature reveals that the utilization of PMSs in hospitals and the inherent financial accountability of physicians are surrounded by a significant dose of tension between physicians and administrators, but at times also among physicians. We seek to extend this stream of research by illuminating PMS transparency and its potential to combine the professional and managerial logics in the hospital setting, with the ultimate aim of mitigating tensions commonly

observed in hospitals. In the following, we flesh out our understanding of transparency by drawing on the literature on enabling controls.

2.2 Transparency in the context of PMSs

The PMSs in the hospitals studied in the literature usually embody the managerial logic and aim at directing the physicians' actions by setting targets for performance measures and linking such measures to rewards (sanctions) in the case of achievement (non-achievement) (Eldenburg et al., 2017; Lachmann et al., 2016; Naranjo-Gil & Hartmann, 2006). As employees are held accountable for producing specific results, their scope of action is likely to be reduced. Contrasting with these restrictive – or “coercive” – approaches, a stream of research building on the framework by Adler and Borys (1996) on bureaucratic structures suggests that management controls, including PMSs, can also be designed in an enabling way (Ahrens & Chapman, 2004; Bastini et al., 2022; Englund & Gerdin, 2015; Strauss & Tessier, 2019). Enabling controls aim to provide information that helps employees to make sense of their work and to empower their ability to make decisions and to foster self-control (Naranjo-Gil & Hartmann, 2006). In so doing, enabling controls also contribute to an organization's objectives (Ahrens & Chapman, 2004; Jordan & Messner, 2012).

This stream of research represents an initial point for our study, given that it provides a—compared to other papers (e.g., Bol et al., 2016; Maas & van Rinsum, 2013)—relatively concise notion of transparency.² According to this literature, transparency is part of the “objective characteristics” (Adler & Borys, 1996, p. 85), of which enabling controls are composed. While the core of transparency is users' access to information (Ahrens & Chapman, 2004; Schnackenberg & Tomlinson, 2016), the literature on enabling controls follows the framework by Adler and Borys (1996) and distinguishes two levels of transparency—internal and global transparency. Internal transparency refers to information that increases the employees' knowledge of the operations of the organizational unit they work in (Burney et al., 2017; Wouters and Roijmans, 2011). In the context of PMSs, it requires that employees understand the performance measures themselves and are aware of their target values (Ahrens & Chapman, 2004; Jordan & Messner, 2012).

Global transparency refers to information that increases the visibility of the overall context in which employees perform their tasks (Coyte, 2019; Englund & Gerdin, 2015; Free, 2007). It is supposed to create an understanding of how local activities fit into the organization as a whole and of how the employees' work contributes to the achievement of organizational objectives (Chapman & Kihn, 2009; O'Grady, 2019; Wouters & Roijmans, 2011). In the context of PMSs, global transparency can, for instance, be achieved by making departmental budgets available to managers of other departments (Ahrens & Chapman, 2004). The sharing of such information may not only unveil the contributions of individual departments to organizational objectives, but may also enable learning and the exploration of best practices between departments (O'Grady, 2019).

² In papers not dealing with enabling controls, transparency refers more broadly to the availability of performance information.

The literature on enabling controls documents a range of benefits resulting from PMS transparency and portrays it mostly in a positive light (van Triest et al., 2023). In particular, there is evidence that PMS transparency may contribute to the empowerment of employees (see Strauss and Tessier (2019) for a review of the literature). However, this research has mostly been focused on commercial organizations, which do not have to accommodate multiple logics. Therefore, conflicts between the goals, rationalities and values of different groups of employees are in the organizations studied usually less pronounced than in hospitals. In light of this, we discuss the suitability of PMS transparency in the hospital setting in the following section.

2.3 Conjectures regarding PMS transparency in the hospital setting

Our paper builds on the idea that PMS transparency advances the physicians' understanding of how their departments function financially and of what the departments contribute to the overall hospital performance. We argue that physicians may mobilize this understanding to engage in self-control, i.e., to assess whether financial targets are achieved and to focus effort towards the achievement of these targets in a self-organizing manner with less managerial interventions (Chapman & Kihn, 2009; O'Grady, 2019). These tendencies may be particularly pronounced when benchmark information, in terms of global transparency, is provided (e.g., Eldenburg, 1994). When the allocation of financial, human or other resources is linked to the departments' financial performance (Morinière, 2023; Morinière & Georgescu, 2022), PMS transparency may support physicians in improving the financial performance of their department and thus strengthen their bargaining power in negotiations for resources. If the stronger bargaining position translates into better resources, PMS transparency thus promotes the combination of medical and financial considerations, which in turn could mitigate tensions between physicians and administrators.

We further suggest that PMS transparency may also enhance the physicians' discretionary leeway in operational decisions. For instance, if physicians are aware that their department is likely to outperform the average target length of stay, they have more latitude to make a discretionary decision about the dismissal of a patient in his or her favor. Furthermore, transparency may increase the physicians' autonomy to make strategic proposals, such as the specialization in medical procedures for which the DRG reimbursements are comparatively high (Lachmann et al., 2016). What these ideas illustrate is that PMS transparency implies the potential to maintain physicians' scope of action and to contribute to physicians' continuing self-control as a constituting element of their professional autonomy (Kerpershoek et al., 2016; Levay & Waks, 2009). Therefore, PMS transparency may embody the professional logic traditionally prevailing in the hospital setting (Reay & Hinings, 2005) to a higher degree than PMSs encompassing less transparency.

However, transparency does not only imply access to information, but also requires that users understand this information (e.g., Englund & Gerdin, 2015; Wouters & Wilderom, 2008). Unlike Adler and Borys' (1996) conception of transparency as an "objective characteristic", we contend that transparency is not solely objective, but rather consists of objective dimensions, such as access

to information, and subjective dimensions, such as the comprehensibility of this information. We therefore suggest that the objective dimensions determine a potential for PMS transparency, the exploitation of which depends on how the subjective dimensions are perceived. In light of the different professional backgrounds of administrators and physicians, the comprehensibility of performance measures may differ, potentially culminating in a perception gap with regard to transparency. This idea reflects the insights provided by Oppi et al. (2019), who conclude, based on a literature review on physicians' use of and resistance to accounting information systems, that physicians do not always understand the importance of accounting information. This perception may be related to the curricula of medical schools, which typically exclude management courses (Oppi et al., 2019). This also applies to the German setting (Jacobs, 2005), in which our study is settled.

Moreover, PMS transparency may have an enabling effect only when users perceive the PMS as supportive in better mastering their tasks. In line with the professional logic, physicians may be expected to prioritize the provision of health-care irrespective of financial considerations (e.g., Kurunmäki, 2004; Lachmann et al., 2016). In contrast, hospital administrators are likely to be attached to the managerial logic and, hence, put a stronger focus on the efficient use of resources (Cardinaels & Soderstrom, 2013). Therefore, it appears questionable whether physicians perceive PMSs, which hold them accountable for financial outcomes, as supportive in mastering their tasks, even when they have access to comprehensible information. This idea is in line with prior research suggesting that physicians consider accounting information in their decision-making only when it fits their information needs (Oppi et al., 2019) and that a decoupling of clinical activities and PMSs may occur otherwise (e.g., Kurunmäki et al., 2003; Leotta & Ruggeri, 2022).

If transparency, however, increases doctors' commitment to financial performance, there is a risk that performance pressures and associated tensions within departments, as observed by Morinière (2023) as well as Morinière and Georgescu (2022), will increase further. Also, when global transparency enables comparisons between the performance of departments, competition between clinical departments for scarce financial and human resources may intensify, potentially culminating in increased tensions between departments.

Taken together, these considerations raise the question of whether the PMS transparency in hospitals can be seen in a similarly positive light as previous research has done with regard to commercial organisations, which do not have to accommodate multiple logics (van Triest et al., 2023). Therefore, our paper aims at an exploration of PMS transparency in the hospital setting. Given the expected dynamics between physicians and administrators, but also within the medical profession, we intend to look at such transparency from different angles, considering the preparer perspective of the administrators and the user perspective of the physicians. More precisely, we seek to shed light on the rationales of administrators for incorporating different levels of transparency into PMSs and the physicians' perceptions of these levels and their responses. We intend to make sense of potential perception gaps to flesh out our notion of PMS transparency in the hospital

Table 1 Key characteristics of the hospitals studied

Case hospital	Alpha	Bravo	Charlie	Delta
Number of beds	800	700	700	400
Number of employees	1100	1100	1900	1200
Operating revenue (in €)	110,400,000	99,500,000	146,000,000	75,200,000
Number of sites	3	3	2	2

A more comprehensive list of hospital characteristics is included in [Appendix A](#)

setting. In the next section, we outline the research approach utilized for achieving our research objective.

3 Method

3.1 Research approach and case selection

We pursue our research objective based on a multiple case study, which comprises four hospital organizations with religious denomination and nonprofit status located in Germany, where the DRG reimbursement system has been introduced in 2004, reinforcing the developments outlined at the beginning of Sect. 2.1 (e.g., Tiemann et al., 2012). For reasons of confidentiality, we call the hospitals Alpha, Bravo, Charlie, and Delta. In nonprofit hospitals, particular emphasis is usually placed on their mission (Lachmann et al., 2016), implying that the economization of the healthcare sector puts this group of hospitals under particular pressure for change. At the same time, coercive PMSs tend to be less utilized than in other types of hospitals (Lachmann et al., 2016), suggesting that enabling approaches may be particularly suitable for this type of hospital.

The multiple case study approach facilitates replication and theory development (Scapens, 1990). Replication requires the selection of similar cases, while theory development presupposes the selection of dissimilar cases (Eisenhardt, 1989; Scapens, 1990). The selection of dissimilar cases implies the potential to identify differences that contribute to the theory development. At the same time, having two similar cases allows to discriminate between the findings that are idiosyncratic to a single organization and those that can be replicated (Eisenhardt & Graebner, 2007).

Accordingly, we aimed at a selection of cases showing similarities and differences. However, as we did not know which PMSs were employed in potential case sites beforehand, we looked for differences which might affect the emphasis placed on PMSs, and therefore presumably their design (see van der Kolk et al. (2015) for a similar approach). For this reason, we aimed to include specific polar types of nonprofit hospitals according to the financial surplus generated (Eisenhardt & Graebner, 2007). Moreover, we took the number of competitors in the surrounding areas into account. By doing so, we assumed that hospitals with poor financial performance and a setting with more competitors are likely to place greater emphasis on PMSs

than hospitals operating under opposite conditions. We thus aimed at variety, but did not anticipate how these differences may affect PMSs.

In order to ensure a sufficient degree of comparability, we also took similarities into account. All sites are general hospitals in urban areas. Moreover, even though the hospitals differ with regard to the numbers of beds, cases and specializations, they are all medium-sized, offer a considerable number of specializations and comprise at least two sites. Therefore, the hospitals are similar with regard to their organizational structures. Table 1 provides a summary of the main characteristics of the hospitals in the study, and a more comprehensive list of hospital characteristics can be found in [Appendix A](#).

Over the course of the data collection and analysis, we recognized patterns indicative of two hospitals in which the hospital administrators aim at high PMS transparency (Alpha, Delta), and two hospitals in which the hospital administrators strive for low PMS transparency (Bravo, Charlie). Our notion of transparency was guided by the distinction between internal and global transparency established in the literature on enabling controls. These different intentions constituted a promising starting point for us to explore the perceptions and responses of administrators and physicians in leading positions.³

3.2 Data collection

Our data collection comprises semi-structured interviews, informal post-interview discussions, and written and electronic documentation. The interviews constitute our main source of data, with informal discussions and internal documents serving as supplementary sources for understanding the setting (Miles et al., 2020). In each of the hospitals, we interviewed actors that can be considered either preparers or users of PMSs. The first group comprises Chief Executive Officers (CEO), Corporate Operating Officers (COO), management accountants, and, if applicable, additional employees (e.g., quality and business development) responsible for management controls and PMSs in particular. The second group consists of top executives of the medical and nursing profession with leadership responsibilities as PMS users.

The participating Chief Medical Officers (CMO), fellow clinical directors, and senior doctors determine the major paths of medical treatment (Jacobs, 2005). The clinical directors each head a clinical department and assume responsibility for its performance in financial as well as medical terms (Jacobs, 2005). As in other European countries (e.g., Prenestini et al., 2021, p. 3), clinical directors maintain their clinical practice and thus can be considered “part-time managers”. In addition to their managerial responsibilities, clinical directors are involved in the medical treatment of patients. Hence, they continue to gather “hands on” experience in patient care and clinical decision-making. Given that clinical directors are held accountable for their department’s medical and financial performance, they face strong incentives to engage with PMSs, a process called “hybridization” in the literature (e.g., Begkos

³ Contrary to our expectation, we do not find patterns between the financial performance of a hospital and its administrators’ intention to establish transparency. However, we do find that the hospitals in which the administrators aimed at high transparency have more competitors in the surrounding areas.

& Antonopoulou, 2022; Kurunmäki, 2004; Rautiainen et al., 2022). The CMO is the top representative of the clinical directors and a member of the hospital's top management (Jacobs, 2005). The CMO is usually appointed from among the clinical directors and continues to head a clinical department (Kuntz & Scholtes, 2013). As such, a CMO, like the clinical directors, balances managerial responsibility with involvement in patient care. Moreover, we also interviewed the Chief Nursing Officers (CNO) as representatives of the nursing staff, which collaborates closely with the physicians. In total, we conducted 40 interviews throughout the four case hospitals. The interviews lasted, on average, 78.2 min, were recorded and transcribed. Further details about the participants are provided in [Appendix B](#).

The semi-structured interviews covered the organizations' objectives, strategies and management controls, and focused on the rationales behind the PMS design, perceptions and use of PMSs, and interactions and conflicts within the hospitals, particularly related to the PMSs (see [Appendix C](#) for the list of themes covered in the interview guide). The themes were discussed in a flexible manner, guided by the intention to establish an "ongoing exchange" (Ahrens & Chapman, 2006, p. 822) between the researchers and the interviewees in order to gain rich insights into the interviewees' perceptions of the PMSs and the dynamics surrounding different levels of PMS transparency.⁴

3.3 Data analysis

Our data analysis followed an inductive process involving data reduction, classification, and interpretation with the aid of the software MAXQDA 12, a computer-based qualitative data analysis program. Initially, our analysis was framed by three main themes—PMS design characteristics, rationales for these characteristics and the utilization of PMSs. Following Miles et al. (2020), we divided the analysis of our data into two major coding cycles. The first cycle involved the initial coding by assigning inductively developed codes to the interview transcripts. Because we adhered to the actual words of the interviewees, the result of this cycle was an extensive preliminary list of categories, some of which overlapped.

In a second coding cycle, we focused on the codes most closely related to our research interest and synthesized them into broader categories, implying that we merged different first-order codes if they referred to closely related phenomena or to different facets of the same underlying phenomenon. For instance, the first-order codes "Providing DRG numbers and costs broken down by cost components", "Providing statistics about referring doctors" and "Providing information about patient satisfaction" were synthesized into the second-order category "Providing physicians with a broad range of (non-)financial performance measures". While we adhered tightly to the "informant terms" during the initial coding, the syntheses performed in the second coding cycle culminated in researcher-based themes and concepts (Gioia

⁴ Since we could not expect that the differentiation between internal and global transparency was widespread in practice, we did not use these terms explicitly, but asked the interviewees to describe the PMSs used and discussed their perceptions. Interestingly, some interviewees came up with the term "transparency" themselves and used it in a more general sense subsuming both, internal and global transparency.

Table 2 Illustration of the coding procedure

Exemplary interview statements	Exemplary first-order codes	Exemplary second-order categories	Exemplary theoretical dimension
“We have an information system for all employees. We are quite open regarding the dissemination of performance measures. There is not only department-specific information, but everyone has access to all departments.”	Openness regarding the dissemination of performance measures	Interdepartmental availability of performance measures	Indications of a high potential for transparency
“A department can only function – and that’s what it’s all about, right? – if the data supply one receives is comprehensive, but also reliable. Decisions must be made based on an economically sound base.”	Making decisions on an economically sound base	Supporting (profit-oriented) decision-making in clinical departments	Rationales for incorporating a high potential for transparency
“We can’t change many things anyway. We swallow it or take note of it. I can’t change anything about the occupancy statistics. At the most, I can make the patients stay for an additional day.”	Taking note of the occupancy statistics with little ability to change them	Perceiving performance measures as not controllable	Perceptions of a high potential for transparency
“If an internist treats the patient in the emergency room, he will probably transfer him to the internal medicine department to get this case. But the hospital would probably earn more if the patient was transferred to the geriatric medicine department.”	Transferring patients to one’s own department, even if hospital could earn more by transferring them to another department	Prioritizing departmental objectives over the objectives of the hospital	Responses to a high potential for transparency

The complete list of second-order categories and theoretical dimensions, together with illustrative first-order codes and interview statements, is presented in [Appendix D](#)

et al., 2013, p. 20). Table 2 illustrates the coding procedure with examples of interview statements, first-order codes, second-order categories and theoretical dimensions. The complete list of second-order categories with illustrative first-order codes and interview statements is presented in Appendix D. Drawing on the categories that emerged from the second coding cycle, we then explored the relationships between these categories. In particular, we were interested in illuminating patterns between indications of a high or low potential for transparency and the physicians' responses as well as between the administrators' and physicians' perceptions of transparency. In this way, we were not only able to identify gaps in the perceptions of administrators and physicians, but also to develop a thorough understanding of the tensions related to high or low potentials for transparency, culminating in the exploration of the dual nature of transparency. Eventually, we related the second-order categories to the theoretical dimensions derived from our review of the literature on enabling controls and PMS transparency (see Appendix D) and interpreted our results in light of this framework.

4 Findings

We present our findings in two subsections. The first subsection refers to Alpha and Delta, which are the two hospitals in which the hospital administrators aim at high PMS transparency. The second subsection contains our findings on Bravo and Charlie, which are the two hospitals in which the hospital administrators strive for low PMS transparency. In both subsections, we first focus on the administrators' and thus preparers' perspective and complement these insights by presenting our findings on the physicians' and hence users' perspective. This structure enables us to map out the similarities between two of the cases and the differences vis-à-vis the two remaining ones.

4.1 PMSs with a high potential for transparency in Alpha and Delta

Alpha is the result of a merger between three sites in a highly competitive metropolitan area. While Alpha faced financial problems for a couple of years, Delta is a soundly performing hospital with low debt and two sites in an urban area. The PMSs implemented show parallels, given that the clinical directors of both hospitals receive a broad set of financial and nonfinancial performance measures—comprising DRG-related data (e.g., number of cases, lengths of stay, case-mix indices (CMIs)⁵), costs and revenues, quality indicators, as well as lists of resident physicians and the cases referred by them to the individual departments. These measures imply feedback on the physicians' decisions and shed light on the processes within their department. As the existent literature relates these opportunities to internal

⁵ The CMI is calculated by dividing the sum of the cost weights of all DRGs that were carried out in a department over a specific period and is thus equal to the average cost weight of a department. A comparison of CMIs among departments provides information about the utilization of resources (Schreyögg et al., 2006).

transparency (Englund & Gerdin, 2015; Wouters & Wilderom, 2008), we suggest that these measures reflect a high potential for internal transparency.

In both hospitals, the figures are provided for all clinical departments and thus may enable clinical directors to benchmark their own department against others within the respective hospital. While the clinical directors of Alpha receive performance information in a monthly report, the corresponding data is available on Delta's intranet, including the target values and actual values of performance measures. The wider communication of the performance measures across departmental borders reveals the "'bigger picture' of the organization" (Jordan & Messner, 2012, p. 547) and may help physicians to understand how their departments fit into the organization (Chapman & Kihn, 2009). As prior research suggests that these insights emerge out of global transparency, we suggest that the interdepartmental availability of performance measures implies a high potential for global transparency.

4.1.1 Rationales for incorporating a high potential for transparency into PMS

Our interviews with the administrators suggest that the PMSs in Alpha and Delta were implemented with the objective of establishing a profit-centric view of health-care in the clinical departments. This underlying intention is reflected in several explanations of why hospital administrators provide "*transparency*" (Alpha) and "*openness*" (Delta). One explanation is that information forms an important basis for action, and providing information through PMS transparency benefits physicians' ability to master their tasks, particularly in financial terms: "*A department can only function [...] if the data supply [...] is comprehensive, but also reliable. Decisions must be made based on an economically sound base.*" (COO A2).

In addition, our findings indicate that the triggering of self-comparisons is an administrators' rationale for the interdepartmental availability of performance measures in both hospitals: "*How does one find out if there is potential for savings? By comparing one department to another.*" (Head of Management Accounting D7). In this context, the hospitals capitalize on the clinical directors' striving for external recognition:

"The goal of every clinical director is to make his department look good and present it well. That's the main goal. To make it look good economically [...] but also in terms of external impact and quality, it is the goal of every clinical director to make his department look good in the group." (COO A2)

Exploiting this aspiration, administrators assume that establishing global transparency will initiate clinical directors to outdo each other, particularly in terms of financial performance: Seeing that other departments improve may increase the motivation to improve the performance of one's own department as well, culminating in a profit-centered intra-organizational competition. The administrators thus seem to assume that such self-comparisons facilitate self-control and benchmarking at the department level, which represents a core idea of PMS transparency (O'Grady, 2019). However, intriguingly and counterintuitively to the idea of PMS transparency, the administrators link such self-control with a rather explicit social pressure, anchored in global transparency.

These findings indicate that the administrators intend to establish a stronger economic perspective in the departments. Medical decision-making in the departments is supposed to revolve more around its financial consequences. At the same time, the administrators stress their intention to overcome a silo-mentality and to reinforce an inter-departmental perspective among physicians by providing the comprehensive sets of performance measures for all departments. In so doing, the administrators aim that clinical directors do not only dedicate themselves to their departmental objectives, but also to the hospital objectives, an idea that CEO A1 summarizes as “[t]ransparency creates commitment” and outlines as follows:

“This system [...] ensures that there is high transparency. You know where we are heading. So, there is ultimately a commitment [like] ‘Come on, now we have to pull ourselves together for the last two months, then we’ll have everything [achieved].’” (CEO A1)

A similar pattern is observable in Delta, in which the interviewees also point out that transparency increases the physicians’ commitment to performance improvement, particularly at the hospital level: “*You have to communicate the figures. And if everyone is aware of it, you can try to develop a strategy to improve the figures.*” (CMO D3). Here, the interviewees link PMS transparency with the physicians’ possibilities to contribute to the overall organizational objectives rather than enhancing their chances to achieve the objectives set at the departmental level. Therefore, we observe some ambivalence in the hospital administrators’ rationales to provide PMS transparency, which is summarized by the following quote:

“Bringing them [the clinical directors] on the shared track, actively involving them in the board of directors, having them participate in decision making, but also positioning them against each other, bringing them to the discussion table are tactically important steps.” (Clinical Unit Head A8)

Overall, we find that PMS transparency is, on the one hand, related to establishing an inter-departmental view with a focus on improving financial performance at the hospital level. On the other hand, and conflicting with the aforementioned aim, administrators also intend to reinforce competition between clinical departments, which may be expected to lead to a department-centred focus. Both rationales reflect the administrators’ intention to establish a profitability-based view in the clinical departments, reflecting the managerial logic. In so doing, PMS transparency may be seen as an administrators’ endeavor to mitigate the tensions between the administrators and physicians, which emerge as long as both professional groups attach themselves to different logics. In what follows, we illuminate whether the administrators’ views are reflected by the physicians’ perceptions of and responses to the PMSs implemented in Alpha and Delta.

4.1.2 Physicians’ perceptions of and responses to the high potential for transparency

Referring to the physicians’ perceptions of the PMSs implemented, our findings indicate that they do not mirror the administrators’ perspective. The interviewees

recognize the openness, or transparency, inherent in the PMSs, for instance, by describing the PMS as “*relatively informative, in terms of a self-control measure*” (Senior Doctor D6). At the same time, the PMSs do not necessarily enable physicians to better master their task in financial terms or to increase their commitment towards hospital objectives.

“I look into it [the intranet containing performance measures]. It is also presented to us in the clinical directors meeting. But that’s nice to have for me and nice to look at. But I cannot take something from it.” (Clinical Director D5)

This view can be traced back to some of the performance measures that seem to be of little relevance. The following example refers to the tracking of the time required for surgeries, which the hospital intends to optimize in order to better utilize the operating room capacity.

“I’m terribly uninterested in cutting-suture time. We also tell our assistants that time doesn’t matter at all. It [a surgery] should be done carefully. It doesn’t do anyone any good if you do it in top speed, something is injured and the operation takes three times as long. [...] So, nothing is done here. It’s not about speed, it’s about doing it carefully.” (Senior Doctor A7)

The above accounts are indicative of a notable ambivalence. The physicians share an interest in performance data, particularly due to their awareness that such measures are crucial for the administrators’ decisions on the allocation of resources. However, the measures provided do not seem to empower the physicians to facilitate decisions and actions resulting in an improved department performance or greater contributions to the hospital objectives. Our interviews suggest that there are several reasons for this prevailing view. The first one revolves around the question whether physicians have sufficient abilities to influence the performance measures. A recurring topic is physicians’ limited influence on DRG-related measures, in particular, on specific case numbers—reflected, for instance, by the rhetorical question: “*Am I supposed to go out when it’s icy and trip the old ladies up, so we can get more who break something? What should I do?*” (Clinical Director A6).

The notion underlying this rather provocative question that physicians cannot proactively increase the group of patients becomes apparent in other interviews as well, for example, when CMO D3 refers to a “*predatory competition*”, emerging when the hospital attempts “*to acquire patients who are not yet [our] patients, [but] who are still patients somewhere else*”. Other interviewees express similar views, such as the following statement, which points out that improvements in performance depend on the allocation of resources within the hospital.

“I can see online every day whether I’m on target. [...] But unfortunately, I can’t change it. I don’t have more operating room capacity. We’ve been talking about it for ages.” (Clinical Director D4)

What emerges here is a concern about the controllability of DRG-related data, such as the number of cases. Given that the interviewees can influence such performance measures to a limited degree only, they do not perceive the PMS as

reinforcing measures which may directly enhance the departmental or hospital performance. This issue is also part of the following statement, which furthermore hints at another issue:

“I can’t change anything about the occupancy statistics. At the most, I can make the patients stay for an additional day. At the same time, it would also be interesting for me, for example, [to find out] what is better for the hospital? [...] Is a higher occupancy statistic better or to keep the occupancy days in the department as low as possible?” (Senior Doctor A7)

In addition to the limited influence on the number of cases, this interviewee indicates that the cost attached to decisions regarding patients’ lengths of stay remain unclear. This interviewee goes on by articulating the following anticipation:

“I expect a structured knowledge sharing, so I can work with the data. How the hospital benefits and the department. [...] They [the management accountants] need to show us that they exploit the information they receive from us in a way that we can optimize the hospital revenues.” (Senior Doctor A7)

These statements suggest that PMS transparency on its own may not be sufficient for achieving what the administrators attached to the PMSs implemented. Similar remarks can be found in other interviews, for instance, when Clinical Director A6 describes the lack of “*a prudential medical mediator between numbers and contents*”. Our findings thus indicate that the performance measures provided are not self-explanatory and require further annotation from the members of the hospital administration.

In addition to the concerns related to the controllability and comprehensibility of the performance measures, issues of reliability are mentioned in both hospitals. In Delta, such issues become, for example, apparent when the budget of one department is charged with drugs that are administered in other departments (“*For instance, drugs are assigned to us, although we don’t prescribe them.*” (Clinical Director D4)). In Alpha, inconsistencies occur “*with regard to the number of treatments*” (CMO A5). In order to detect such inconsistencies, clinical directors in Alpha develop their own records and compare their output with the reports received from the management accountants, as the following quote depicts: “*Based on our experience, for our own safety, we do our own calculations [...] to check this because we do not trust the figures.*” (CMO A5).

Taken together, our findings suggest that what the administrators frame as PMS transparency is not perceived as such by the physicians. Rather, PMS transparency signals the shortcomings of the performance measures provided, such as their limited controllability, reliability as well as comprehensibility. At the same time, however, we find that the PMSs affect the physicians’ actions in an unintended manner. The interviews in both hospitals reveal specific episodes, in which physicians pursue the financial objectives of their department in a rather opportunistic manner—condoning adverse effects on the performance of other

departments. In Alpha, conflicts are reported occurring in the context of cases with considerable latitude. Referring to the example of an 85-year-old patient admitted to the hospital with stomach pain, one interviewee illustrates the conflict between the internal medicine and the geriatric medicine departments:

“If an internist treats the patient in the emergency room, he will probably transfer him to the internal medicine department to get this case. But the hospital would probably earn more if the patient was transferred to the geriatric medicine department.” (Head of Management Accounting A9)

Given that the clinical directors are considerably concerned about their reputation within the hospital (CEO A1), the organization-wide availability of performance measures for all departments seems to reinforce this behavior and thus hampers the adoption of a hospital-wide view. Similar tendencies are observable in Delta, when Clinical Directors “*misjudge resources, misjudge them on purpose*”, for instance, when “*you know that a surgery takes 300 min, but you only write it down as 200 in the surgical planning, so you can schedule two surgeries*” (CMO D3).

We suggest that these incidents represent manifestations of the intra-organizational competition at which the administrators aimed by incorporating transparency into the PMSs implemented. However, while such intra-organizational competition seems to be intended in a synergetic and constructive manner, we find evidence for rather dysfunctional outcomes. These outcomes indicate that the physicians turn more towards the financial considerations of their decisions—a step that is likely to mitigate tensions between administrators and physicians. However, our findings also point to tensions which arise among physicians and, eventually, affect their patients.

In summary, our findings point to diverging perceptions of transparency on the parts of the administrators and physicians. The administrators consider the PMS as transparent and relate this to commitment, involvement, organization-wide views, and self-control. These expectations seem clearly anchored in a profit-centred view. PMS transparency implies a transfer of power that the physicians are supposed to exploit in order to improve the financial performance of their departments and their contributions to the hospital objectives. Our findings regarding the physicians, however, do not fully mirror these expectations. Despite being flawed with issues concerning the controllability, reliability and comprehensibility of the performance measures provided, PMS transparency seems to contribute to a profit-centric view among physicians, reflecting the managerial logic. In this way, the objectives of physicians and administrators are converging. Accordingly, tensions between administrators and physicians tend to mitigate. However, PMS transparency triggers opportunistic behavior regarding transfers and the claims of resources, raising tensions between departments and thus among physicians. In the following, we complement these findings by presenting our results on Bravo and Charlie—the two case hospitals with a comparatively lower potential for PMS transparency.

4.2 PMSs with a low potential for transparency in Bravo and Charlie

While the financial performance of Bravo is low, Charlie is the highest performing hospital among our cases. Despite the performance differences, the PMSs implemented in these hospitals show a number of similarities, and differences compared to Alpha and Delta. The backbone of the PMS of Bravo is the monthly performance reports that the clinical directors receive. They include DRG-related measures and quality indicators, but they exclude complete cost information. Costs are recorded and allocated to the departments, but only partially reported. Moreover, while labor costs are retrospectively communicated to the clinical directors for the overall year, the costs of materials are not reported at all.

Similar performance report contents are observable in Charlie; the monthly performance reports include DRG-related measures, whereas the cost information is only reported quarterly along with deviation analyses. However, the cost reports do not provide a complete overview of the departmental resource consumption. Moreover, personnel costs are not reported, as only headcounts are disclosed. Therefore, the clinical directors do not know the financial results of their respective departments, even though the hospital's cost unit accounting includes contribution margins per department. Instead of a frequent reporting, in both hospitals, the contribution margins are situationally discussed only with the clinical directors to *"trigger a struggle for resources"* (Head of Management Accounting B9). The partial provision of costs and the corresponding lack of profit information implies that the measures provided do not reveal a complete picture of the economic situation of the departments and the financial consequences of the underlying processes and decisions. As the existing literature suggests that a complete picture is indicative of internal transparency (Burney et al., 2017; Englund & Gerdin, 2015), we propose that the PMSs implemented in Bravo and Charlie imply little potential for internal transparency.

In contrast to Alpha and Delta, the clinical directors in Bravo and Charlie only receive information for their department and are thus neither able to identify their departments' contributions to the overall hospital nor to compare themselves with other departments. In light of the implications of global transparency discussed in the existent literature (Chapman & Kihn, 2009), we suggest that the characteristics observed imply a low potential for global transparency.

4.2.1 Rationales for incorporating a low potential for transparency into PMS

Our interviews indicate that the limited potential for transparency stems from the administrators' intention to avoid tensions and power struggles among physicians. This intent becomes particularly apparent in the concealment of cross-subsidies that exist between departments:

"First of all, the clinical director gets his own data. He does not get the data of the neighboring department[s]. There is a very simple reason for this. I don't want the surgeon telling the psychiatrist 'I'm subsidizing you' or the

urologist telling the oral surgeon ‘I’m subsidizing you’. I don’t want that.” (CEO C1)

Such cross-subsidies occur in both hospitals, because the DRG reimbursements reflect costs imperfectly. Therefore, some departments generate comparatively low revenues, whereas others earn relatively high revenues in comparison to the costs of treatment (*“For instance, internal medicine often makes losses because they are valued low in the DRG system.”* (Head of Coding C6)). The administrators have to accept the losses of some departments and the according cross-subsidies because the hospitals are required to provide a specific level of basic medical services:

“Given that we have to offer a range of services, we don’t achieve a positive contribution margin in all departments. [...] In vascular surgery, for example, you have a negative contribution margin, while you have a positive contribution margin in cardiology, and overall, it has to fit.” (COO B3)

A similar view is prevailing in Charlie as captured by the following quotation:

“You can of course adopt a business perspective by looking at the individual departments as a value creation process or structure and making contribution margin calculations [...]. And then, of course, we see that we have different profit margins in the individual departments, positive and negative ones. However, since we are a Christian hospital as a whole, we cannot only perform our services based on business arguments and calculations.” (Head of Operations C7)

What we observe here is that the administrators ease the financial pressure placed on individual departments. While it is crucial for the hospitals to break even as an organization, not every single department is expected to cover its cost. As the administrators do not evaluate and compare departments solely based on their contribution margin, they recognize the equal value of all services, irrespective of their financial outcome. Interestingly, this view conflicts with the physicians who often *“have this idea: ‘Yes, but every department must be able to be managed plus, minus zero’”* (Head of Finance of C5). PMS transparency is likely to reinforce such a profit-centric view, as our findings on Alpha and Delta indicate, conflicting with the perspective taken by the administrators in Bravo and Charlie. Accordingly, the low potential for transparency observable in Bravo and Charlie reflects the administrators’ attempt to mitigate the focus on profitability.

By concealing the negative contribution margins of individual departments and the corresponding cross-subsidies, the hospital administrators of Charlie attempt to avoid *“a dysfunctional competition, so no one thinks: ‘I lean back, because other departments perform worse.’”* (Management Accountant C9)),⁶ which may

⁶ Interestingly, this interviewee states that transparency *“is seen very critically here in the hospital”*, yet expresses a different viewpoint: *“I would like to promote competition in a healthy way and therefore to make the information available to my colleagues. [...] This can also work well in terms of best practice, that the self-reflecting person approaches a colleague and asks ‘How did you actually do that? Did you invite your referring doctors and talk to them or how did you manage to improve your departmental performance in the last month or quarter?’”* (Management Accountant C9). This perspective coincides with

undermine the decision authority of the hospital administrators, as the following quote exemplifies:

“We avoid competition between the departments, as well as generating claims. If we, for instance, report that one department has a positive contribution margin of plus 500,000 Euro and another a negative one of minus 100,000 Euro, the director of the first one might claim, ‘I have plus 500,000, so I wish to hire an additional doctor; I need my department to get refurbished. I am generating the profits.’ [...] We don’t want to get whipsawed because the hospital management decides which necessities apply and who gets which resources.” (Head of Operations C7)

Here, the administrators show awareness that PMS transparency grants more power to the physicians, which may lead to increased tensions among the physicians as well as between physicians and administrators as PMS transparency enables them to claim resources for their department based on profitability-related reasoning. In order to avoid such tensions, the hospital administrators aim to obfuscate the individual departments’ performance and contributions to the organizational objectives. The low potential for transparency thus preserves the administrators’ power, but reduce the physicians’ power in negotiations between the administration and individual departments over resources.

A related reason for not disclosing departmental profits in Charlie is the so-called “catalogue effect”, which refers to changes in the valuation of cases over time due to changes in the DRG reimbursement system. Our interviews anticipate that catalogue effects in conjunction with high transparency concerning departmental profitability may lead to senses of entitlement:

“Let’s assume you have an urology department that now has, let’s say, a result of € 100,000 plus and a turnover of maybe 4 million. [...] There is a catalogue effect of 3%. That means € 120,000 more revenue. That means € 120,000 more profit. [...] If you now assume that the clinical director has the same patients with the same issues, with the same people [...]. Where does he have the extra work to say, ‘But I want to have more staff now’? [...] What I’m getting at is that you have to be able to deal with such results.” (Head of Finance C5)

In addition to DRG-related characteristics, the allocation of overhead costs is another source of tension that the administrators try to avoid by building limited internal transparency into the PMSs. The allocation of overhead costs to the departments usually has two layers, as the following quote indicates:

“What is in allocation layer 1, where it is about medical expenses, i.e., surgery, radiology and the like, [...] they still understand. But then comes the large remaining area [layer 2] [...] [with] huge amounts because you have all the energy in there, the complete supply structure, the complete administra-

Footnote 6 (continued)

the view shared by many administrators in Alpha and Delta (see Sect. 4.1.1).

tion, the complete maintenance, etc. These are huge sums that you have there.” (Head of Finance C5)

While the costs from the second layer are usually beyond the physicians’ control, these costs are incurred because the corresponding infrastructure supports the departments. Hence, the overhead costs are allocated to the department but are not shared with the clinical directors because “[i]t is of course a delicate story to explain to a clinical director how the infrastructure costs that we allocate to his department are distributed” (Head of Operations C7). Similar concerns are observable in Bravo, according to the following quote:

“We can only set a cost target for those responsible for the costs that they can also influence. Thus, you have to think about how far you make this breakdown.” (COO B3).

To avoid disputes with the physicians about the allocation procedure, the administrators in both hospitals tend to limit the resulting costs allocated and adjust the physicians’ financial accountability, as exemplified by CEO B2 in the following statement: “*I would rather have the clinical director responsible for only 40% of the costs. But by mutual agreement.*”

Taking these accounts together, we suggest that the administrators limit PMS transparency because they try to minimize tensions between physicians from different clinical departments, which may emerge when global transparency reveals cross-subsidies between departments. The administrators further try to reduce conflicts between physicians and themselves. Such tensions can arise when physicians of high-performing departments request additional resources because of their performance, and administrators do not release them because they acknowledge the equal value of all services. Another reason for such tensions may be found in issues related to the controllability and reliability of the data. Accordingly, the low potential for PMS transparency represents an attempt to avoid both, tensions among physicians and between administrators and physicians. A side effect of this approach is that the physicians may use the perceived lack of transparency as a shield against financial accountability as a way to justify why they have not addressed certain issues, as the following quote illustrates:

“[T]he problem of information asymmetry is persistent. I don’t think that it is always the instrument to get out of it, but sometimes they are like, ‘I do not have the information now, I did not have it with me, I did not prepare it. I was not told.’ So you just sit there and don’t have this information and can’t continue working on it”. (Management Accountant C9)

4.2.2 Physicians’ perceptions of and responses to the low potential for transparency

“*It would be incredibly difficult to find out what our department earns. But this is what we are judged by. What do we actually earn or what do we cost?*” (CMO C3); “*There is a weak flow of information between the hospital management and the clinics*”

(CMO B5). These quotes, which suggest that the interviewees perceive limited transparency with regard to the departments' financial performance, indicate the general perception of the PMSs among the physicians participating in our study. In both hospitals, physicians are aware that the lack of transparency hinders clinical decision-making through the lens of profitability, as exemplified by the following account:

"I have no information on how much my earnings are. At most, I can deduce this from the CMI points that I have in my department. But I don't know my material costs or anything else, and it is actually too little for my taste to be able to say that I really had the opportunity to be involved in strategic decisions or to be able to plan. [...] [However,] if you actually have a completely transparent situation about income and expenses of the department, which would of course be nice, you would actually be able to see the whole thing really commercially." (Clinical Director B6)

As in the other case sites, we detect a considerable interest in performance data and thus in exploring how the departments perform in financial terms. However, the low transparency perceived makes it difficult to estimate the financial impact of decisions, for example with regard to the timing of dismissal.

"There are certain decisions, e.g., whether I transfer a patient to rehab rather quickly or still offer certain services and then transfer the patient at a later point in time; this was not really explained to me. [...] We do not receive information regarding the revenue side and consumption side for specific diagnoses that might help us to realize that we probably should not specialize in this area." (Clinical Director B7)

The above record indicates that this interviewee perceives an information gap in the context of both operational and strategic decisions, which may not only compromise the further development of single departments, but also the development of the hospital more generally:

"The permeability of information is relatively low, which I don't think is good, because we could [having more information] certainly be much more supportive in some things." (Senior Doctor B8)

However, the above should not be interpreted merely as the physicians' commitment to the managerial logic. Instead, the physicians indicate that the lack of transparency hampers their ability to defend the needs of their departments, which are driven by the medical interest in obtaining resources to provide the best possible medical care. Therefore, the low transparency mitigates physicians' attachment to the professional logic. According to CMO C3, the limited sharing of information in Charlie empowers the hospital's management because "*information advantages secure power*", while more detailed information could be used instrumentally for claiming resources: "*I would like to know our results because that would enable me to conduct discussions about staffing in a different way.*" In a similar vein, another interviewee expresses interest in information about financial data in order to assess the adequacy of staffing:

“At the end of the day, what we don’t know at all is [...] what a department brings to the table. So what does the department really bring in and what does it basically cost? And is the number of doctors and staff too high or too low? Of course, these are figures that we as doctors would also be interested in from an economic point of view, but you won’t get any data on them.” (Senior Doctor B8)

We thus detect two sides of low PMS transparency. On the one hand, the lack of transparency protects physicians from a profit-centric view of their work. On the other hand, being aware of the linkage between financial performance and resource allocation, the lack of transparency also limits their power to obtain resources needed to improve medical outcomes and to strengthen their department. Therefore, our findings are thus indicative of a notable dynamic. While the administrators built little transparency into the PMSs in order to avoid senses of entitlement and tensions between the clinical departments, physicians’ dissatisfaction with the information available gives rise to tensions between the physicians and the administrators.

In summary, we observe a higher degree of consistency in the perceptions of administrators and physicians at Bravo and Charlie compared to those at Alpha and Delta. The administrators suggest that they aim at limited transparency because a higher level might initiate dysfunctional self-control and senses of entitlement on the part of the physicians from higher-performing departments. The attempts to conceal cross-subsidies between departments suggests that the administrators recognize the equal value of all services and shield the physicians from a profit-centric view of medical services. Simultaneously, the administrators secure their authority with regard to the allocation of resources. Transparency might also culminate in discussions about the controllability and reliability of the data from which tensions between administrators and physicians can arise. However, the physicians indicate that the low level of transparency impairs their involvement in operational and strategic decision-making and their power in negotiations for resources, resulting in tensions between physicians and administrators that the latter were trying to avoid in the first place.

5 Discussion

The objective of this paper is to advance our understanding of PMS transparency in the hospital setting. Our study contributes to this understanding by exploring a string of dynamics pertaining the administrators’ rationales to incorporate different levels of transparency into PMSs and the physicians’ responses to them as well as the differences in the perceptions of these two groups regarding PMS transparency. In the following subsections, we discuss the insights provided and the contributions to the literature emerging from them.

Table 3 Summary of findings

Case hospital	Alpha	Delta	Bravo	Charlie
Panel A: Potential for transparency	<i>High potential for internal transparency</i>, as physicians receive a broad set of financial and nonfinancial performance measures <i>High potential for global transparency</i>, as performance measures are available across departments enabling benchmarking with other departments	<i>High potential for internal transparency</i>, as physicians receive a broad set of financial and nonfinancial performance measures <i>High potential for global transparency</i>, as performance measures are available across departments enabling benchmarking with other departments	<i>Low potential for internal transparency</i>, as physicians receive DRG-related measures and quality measures but cost information provided is incomplete <i>Low potential for global transparency</i>, as performance measures are available for individual departments only	<i>Low potential for internal transparency</i>, as physicians receive DRG-related measures and quality measures but cost information provided is incomplete <i>Low potential for global transparency</i>, as performance measures are available for individual departments only
Panel B: Preparers' perspective	Administrators' rationales for <i>incorporating a high potential for transparency</i>: Establishing a profit-centric view of healthcare in the clinical departments Increasing physicians' ability to act and to master their tasks, in terms of self-control leading to improved departmental performance Triggering self-comparisons with other departments in order to improve departmental performance Overcoming a silo-mentality and reinforcing an inter-departmental perspective among physicians in order to increase commitment to organizational objectives Overarching intention: Reducing tensions between physicians and administrators	Administrators' rationales for <i>incorporating a high potential for transparency</i>: Establishing a profit-centric view of healthcare in the clinical departments Increasing physicians' ability to act and to master their tasks, in terms of self-control leading to improved departmental performance Triggering self-comparisons with other departments in order to improve departmental performance Overcoming a silo-mentality and reinforcing an inter-departmental perspective among physicians in order to increase commitment to organizational objectives Overarching intention: Reducing tensions between physicians and administrators	Administrators' rationales for <i>incorporating a low potential for transparency</i>: Concealing cross-subsidies between departments and thus avoiding senses of entitlement of high-performing departments Avoidance of dysfunctional competition as a result of self-comparisons with other departments Obfuscating short-comings of the DRG reimbursement system ("catalogue effect") Avoiding discussions about the controllability and reliability of performance measures Overarching intention: Avoiding tensions among physicians and between physicians and administrators	Administrators' rationales for <i>incorporating a low potential for transparency</i>: Concealing cross-subsidies between departments and thus avoiding senses of entitlement of high-performing departments Avoidance of dysfunctional competition as a result of self-comparisons with other departments Obfuscating short-comings of the DRG reimbursement system ("catalogue effect") Avoiding discussions about the controllability and reliability of performance measures Overarching intention: Avoiding tensions among physicians and between physicians and administrators
Panel C: Users' perspective	Physicians' <i>perceptions</i>: PMSs are not perceived as insightful and enabling due to concerns related to controllability, comprehensibility and reliability Physicians' <i>responses</i>: PMSs reinforce opportunistic behavior regarding transfers of patients and claims of resources, resulting in tensions between physicians	Physicians' <i>perceptions</i>: PMSs are not perceived as insightful and enabling due to concerns related to controllability, comprehensibility and reliability Physicians' <i>responses</i>: PMSs reinforce opportunistic behavior regarding transfers of patients and claims of resources, resulting in tensions between physicians	Physicians' <i>perceptions</i>: PMSs are not perceived as transparent with regard to profitability of their own and other departments Physicians' <i>responses</i>: Low transparency weakens physicians' bargaining power in negotiations about resources, leading to tensions between physicians and administrators	Physicians' <i>perceptions</i>: PMSs are not perceived as transparent with regard to profitability of their own and other departments Physicians' <i>responses</i>: Low transparency weakens physicians' bargaining power in negotiations about resources, leading to tensions between physicians and administrators

5.1 The rationales for and responses to PMS transparency

Drawing on what the literature on enabling controls considers indicative of PMS transparency, we suggest that the PMSs implemented in the hospitals investigated differ with regard to their potential for transparency. Panel A of Table 3 summarizes these differences, and Panel B outlines the underlying rationales.

Taking the administrators' accounts together, we conclude that the rationales for incorporating the different levels of transparency revolve considerably around the question of whether PMS transparency will initiate a profit-centric constructive benchmarking or result in a rather destructive competition between departments. In Alpha and Delta, where a constructive benchmarking was anticipated, the administrators obviously expected that PMS transparency would enable lower-performing departments to exploit potential for improving their financial performance and increasing their contributions to organizational objectives anchored in the managerial logic. The envisaged greater interest in financial performance on the part of physicians would imply a convergence of the goals of physicians and administrators with the potential to mitigate tensions between these two professional groups. In Bravo and Charlie, however, the administrators anticipated that greater transparency may result in senses of entitlement among physicians in high-performing departments when they become aware of their comparatively strong performance and existing cross-subsidies. They also expected that PMS transparency might lead to discussions about the controllability and reliability of the performance measures. In anticipation of potential tensions among physicians and between physicians and administrators, the latter thus opted for a low potential for transparency. Even though the outcomes differed, we find that the decisions about PMS transparency were in all case hospitals affected by concerns about tensions within the hospitals and the intention to avoid them.

Despite these efforts, our interviews with the physicians as users of PMSs indicate that tensions still arose in all hospitals, albeit in different ways than anticipated (see Table 3 (Panel C) for a summary). A pattern recurring across the cases is that the physicians were interested in financial performance measures in order to strengthen their department and the medical care it provides.⁷ Our findings reflect that medical departments compete for scarce resources, and that performance measures and the achievement of performance targets represent physicians' primary access to these resources, as recently explored by Morinière (2023). Against this background, the interest in financial performance expressed by the physicians interviewed is less a commitment to the managerial logic than an endeavor to protect their professional logic. In the context of the resource claiming in Alpha and Delta, PMS transparency triggered opportunistic behavior and raised tensions among physicians. In Bravo and

⁷ In this context, it is notable that physicians' interest in financial performance relates primarily to costs. This focus is narrower than our understanding of PMS transparency, which does not refer to cost information solely, but also includes other financial and nonfinancial measures. The focus on costs can be explained by the fact that payments are fixed by the DRG system and that the number of cases appears controllable to a limited extent only from the physicians' perspective. Costs are therefore an important lever for improving the financial performance of a department and attract particular attention (see also Chapman et al. (2022) on the relevance of cost information in healthcare).

Charlie, tensions between administrators and physicians became evident due to the low potential for transparency. The low potential for transparency shielded physicians from the influence of profit-based considerations and internal competition, yet weakened their bargaining position in negotiations with the administrators.

In conclusion, our findings illuminate the dual nature of PMS transparency. On the one hand, transparency may mitigate tensions between physicians and administrators. On the other hand, it may raise tensions among physicians, particularly because of the linkage between the financial performance of departments and the resources allocated to them. We thus extend the recent research by Morinière and Georgescu (2022) showing that PMSs can lead to tensions among physicians by suggesting that PMS transparency can serve to intensify these tensions. Conversely, a lower potential for transparency may have the effect of weakening tensions among physicians, but it may give rise to tensions between physicians and administrators. In sum, our paper adds to prior research on PMSs in hospitals by exploring the multi-layered and tension-filled dynamics surrounding PMS transparency which lead us to conclude that PMS transparency may not be a panacea in hospitals.

Our findings do not only enrich the literature on PMSs in hospitals, but also contribute to prior research on PMS transparency and enabling controls more generally. To the best of our knowledge, this paper is the first to study PMS transparency in a setting characterized by interactions between groups with different professional backgrounds and attachments to different logics. Therefore, our study extends prior research on enabling PMSs, in which such disparities were less pronounced (e.g., Ahrens & Chapman, 2004; Chapman & Kihn, 2009; Free, 2007). Our study extends this stream of research by suggesting that in a setting characterized by multiple logics, PMS transparency may enable employees to prioritize their own objectives at the expense of the achievement of organizational objectives. Therefore, the purposes of enabling PMSs distinguished in prior research, i.e., a better mastering of tasks and the contribution to the overarching organizational objectives (Ahrens & Chapman, 2004; Burney et al., 2017; Jordan & Messner, 2012; Wouters & Wilderom, 2008), may be conflicting in settings with multiple logics and considerable goal incongruence. Hence, our findings underline the pertinence of goal congruence as a contingency of enabling approaches suggested by Adler and Borys (1996), which has, however, received little attention in prior management accounting research.

5.2 Core dimensions of transparency emerging from preparer-user perception gaps

This study reveals preparer-user perception gaps regarding PMS transparency. Our interviews suggest that in Alpha and Delta, perceptions of whether the PMSs contained transparency differed between administrators and physicians (see also Table 3 (Panels B and C)). Contrary to some of the administrators' perceptions, our interviews with the physicians bring to the fore that they did not perceive the PMSs as transparent and thus as enabling. The exploration of such perception gaps underline the importance of bringing the subjects involved in the performance measurement process to the forefront (Micheli and Mari, 2014) and also reemphasizes the

relevance of investigating perceptions and not only design characteristics of PMSs (Strauss & Tessier, 2019).

Our findings hint at several reasons explaining the perception gaps. The interviewees expressed concerns about the controllability of DRG-related performance measures, but also reported issues related to the measures' reliability and comprehensibility. We argue that these insights advance our understanding of transparency, given that prior research conceptualizes transparency as availability of performance information (e.g., Bol et al., 2016; Maas & van Rinsum, 2013) or—as the literature on enabling controls does—as access to comprehensible information only (Ahrens & Chapman, 2004; Englund & Gerdin, 2015; Jordan & Messner, 2012). Our findings speak to these streams of research by emphasizing that performance measures must not only be understood, but also perceived as controllable and reliable, if they are to support physicians do their jobs better.

However, controllability, reliability, and comprehensibility do not only appear helpful in making sense of the perception gaps in Alpha and Delta. These characteristics are also related to the administrators' avoidance of transparency in Bravo and Charlie. The administrators in these hospitals not only anticipated that transparency may culminate in senses of entitlement, but also expected that discussions about the controllability and reliability of the performance measures could emerge, which may raise tensions between administrators and physicians. We suggest that, implicitly, the administrators in Bravo and Charlie seemed to link controllability, reliability, and comprehensibility to transparency, and as these conditions appeared unlikely to be fulfilled in the respective settings, they avoided transparency.

These findings appear intriguing with a view to Schnackenberg and Tomlinson (2016) who provide a multi-disciplinary review on transparency in organization-stakeholder relationships. The relationships considered mostly involve external stakeholders, but they may also refer to internal stakeholders, such as employees. Schnackenberg and Tomlinson (2016, p. 1785) conclude that “transparency is not an unidimensional construct” as it consists of information disclosure, clarity, and accuracy.⁸ Our findings underline the relevance of these dimensions for perceptions of transparency in the context of intra-organizational accountability. We further enrich them for intra-organizational settings by suggesting that perceptions of controllability represent another important dimension of transparency in the context of delegation relationships within organizations.

Going beyond the hospital setting, an important implication arising from the pivotal role that the aforementioned dimensions play in our research is that transparency is not a fully “objective characteristic” as suggested by Adler and Borys (1996). While the access to information may be seen as an objective characteristic, the remaining dimensions of transparency are subjective. Distinguishing between the objective and subjective dimensions is pertinent with a view to Mahama and Cheng (2013) who argue that

⁸ Schnackenberg and Tomlinson (2016) define accuracy as “the perception that information is correct to the extent possible given the relationship between sender and receiver” (p. 1793) and clarity as “the perceived level of lucidity and comprehensibility of information received from a sender” (p. 1792). Although they use different terms, the underlying concepts are in line with our notions of reliability and comprehensibility.

it is the individuals' *perceptions* of the work environment that influence their behavior. Such perceptions require further attention in future research endeavors within and beyond the hospital setting, also from research on enabling PMSs, given that many studies in this stream of research do not distinguish between the objective characteristics and the perceptions of them as enabling (Strauss & Tessier, 2019). Our understanding of how PMSs unfold, however, depends strongly on disentangling these aspects, as we propose that even the design characteristics are not objective, but at least partly subject to the perceptions of the users. This idea is also in line with prior research highlighting that PMSs may create ambiguity regarding the interpretation of their output (see Oppi et al. (2022) for a recent review).

5.3 Summary and avenues for future research

In summary, our study offers a more nuanced account of PMS transparency than previous research, which has often portrayed PMS transparency in a primarily positive light (Puyou, 2018; van Triest et al., 2023). PMS transparency may support physicians in combining professional and managerial logics at the department level and thus seems appealing at first glance. While such a combination may mitigate tensions between administrators and physicians, it may give rise to tensions between departments with potentially adverse effects not only on healthcare professionals, but also on patients, which appears to be at odds with reforms aimed at empowering patients (Laguecir et al., 2024). We suggest that our paper contributes to disentangling a divergence between the theory and practice of PMSs, i.e., a difference between the theory of how PMSs should be designed and the practice of how they are perceived and used (Micheli and Mari, 2014). While transparency plays a significant role in the theorization of enabling controls (e.g., Strauss & Tessier, 2019), our empirical findings on the dual nature of PMS transparency, as well as on the subjective perceptions of preparers and users, put the paramount importance of PMS transparency into perspective.

We hope that our study encourages further research into PMS transparency, particularly in the hospital setting. A further exploration of the dual nature of transparency and how it can be addressed may contribute to a deeper understanding of PMS transparency. Given that issues related to controllability, reliability and comprehensibility compromised the perception of PMS transparency among the physicians, future research could shed further light on the dynamics surrounding PMSs that overcome these issues. Another promising avenue for future research may be seen in an exploration of how the involvement of physicians in the development and implementation of PMSs with high transparency may affect their perceptions and utilization. We believe that in-depth case studies, involving not only semi-structured interviews, but also ethnographic observations, are of paramount importance to deepen our understanding of PMS transparency in the hospital setting.

Appendix A: Case hospitals

	Alpha	Bravo	Charlie	Delta
<i>Operating statistics</i>				
Number of beds	800	700	700	400
Number of employees	1,100	1,100	1,900	1,200
Number of cases (in-patient) ^a	25,100	22,300	26,500	16,600
Number of cases (out-patient)	35,000	16,400	109,600	26,300
Number of specializations	19	19	14	14
Case-mix Index	1.01	1.09	1.14	1.10
Average length of stay in days	7.3	22.5 ^b	8.7	6.6
<i>Financial statistics (in €)</i>				
Operating revenue	110,400,000	99,500,000	146,000,000	75,200,000
Operating expenditure	110,200,000	107,800,000	143,600,000	76,700,000
Surplus	200,000	-8,300,000	2,400,000	-1,500,000
Assets	67,800,000	67,900,000	101,200,000	68,400,000
Liabilities	68,000,000	30,300,000	45,200,000	10,600,000
<i>Composition and geographic diversity</i>				
	All hospitals are nonprofits of religious denomination			
	All sites are general hospitals in urban areas			
Number of sites	3	3	2	2
Direct competitors within 5 km range	7	2	4	6
Teaching status	no	yes	yes	yes

^a Same-day patients admitted for less than 24 h count as inpatients

^b Psychiatric ward in-patients increase hospitals average length of stay significantly

Appendix B: Interviews

No	Code ^a	Occupation	Educational background	Tenure (years)	Length of interview (minutes)
<i>Alpha</i>					
1	A1	CEO	Business administration	28	108
2	A2	COO	Business administration	30	49
3	A3	CNO	Nursing	32	86
4	A4	CMO	Medicine	34	140
5	A5	CMO	Medicine	28	25
6	A6	Clinical Director	Medicine	30	73

No	Code ^a	Occupation	Educational background	Tenure (years)	Length of interview (minutes)
7	A7	Senior Doctor	Medicine	17	82
8	A8	Clinical Unit Head	Medicine	21	83
9	A9	Head of Management Accounting	Business administration	25	66
10	A10	Head of Quality and Business Development	Nursing	15	196
11	A11	Management Accountant	Business administration	9	148
12	A12	Medical Coder	Business administration	20	36
<i>Bravo</i>					
13	B1	CEO	Business administration	23	123
14	B2	CEO	Business administration	27	84
15	B3	COO	Business administration	36	86
16	B4	CNO	Nursing	43	84
17	B5	CMO	Medicine	34	43
18	B6	Clinical Director	Medicine	20	42
19	B7	Clinical Director	Medicine	29	44
20	B8	Senior Doctor	Medicine	33	37
21	B9	Head of Management Accounting	Business administration	36	83
22	B10	Head of Coding	Medicine	32	87
23	B11	Nurse Unit Manager	Nursing	41	50
<i>Charlie</i>					
24	C1	CEO	Business administration	25	57
25	C2	CNO	Nursing	30	53
26	C3	CMO	Medicine	39	93
27	C4	Clinical Director	Medicine	32	35
28	C5	Head of Finance	Business administration	24	114
29	C6	Head of Coding	Nursing	23	84
30	C7	Head of Operations	Business administration	28	84
31	C8	Head of Quality and Business Development	Nursing	34	48
32	C9	Management Accountant	Business administration	6	108
<i>Delta</i>					
33	D1	COO	Business administration	12	123
34	D2	CNO	Nursing	23	74
45	D3	CMO	Medicine	31	48
36	D4	Clinical Director	Medicine	34	59
37	D5	Clinical Director	Medicine	18	35
38	D6	Senior Doctor	Medicine	9	43
39	D7	Head of Management Accounting	Business administration	14	119
40	D8	Head of Quality and Business Development	Nursing	35	97

^a Interviews listed in italics were not recorded. Detailed notes were written during and at the conclusion of each discussion

Appendix C: Themes addressed in the interviews

Professional background of the interviewee (career path, current position, role).

Hospital and departmental objectives/success factors/strategies.

Management controls used to achieve the hospital/departmental objectives, performance evaluation of departments/clinical directors.

PMS design (performance measures available (e.g., DRG figures, costs, quality measures etc.), means of providing performance measures (e.g., intranet, reports, meetings etc.)), rationales for PMS design.

Perceptions of PMS; advantages and disadvantages of the PMS implemented.

Use of PMS for decision-making (operational and strategic decisions); responses to PMS.

Conflicts in interactions with employees from other professional backgrounds, particularly in relation to PMS.

Appendix D: Data structure

Exemplary interview statements	Exemplary first-order codes	Second-order categories	Theoretical dimension
“So it’s not just DRG numbers in there. We have broken it down into labour, personnel costs, material costs. We compare the DRGs to the catalogue, where we are in terms of cost.”	Providing DRG numbers and costs broken down by cost components	Providing physicians with a broad range of (non-)financial performance measures	Indications of a high potential for transparency
“We have an information system for all employees. We are quite open regarding the dissemination of performance measures. There is not only department-specific information, but everyone has access to all departments.”	Openness regarding the dissemination of performance measures	Interdepartmental availability of performance measures	

Exemplary interview statements	Exemplary first-order codes	Second-order categories	Theoretical dimension
“The key performance indicators are case numbers, length of stay, CMI, i.e. weighting, and billing status, i.e. billing flow. How quickly can the invoice be written after a patient is discharged?”	Providing DRG numbers and billing information	Providing physicians with incomplete performance information	Indications of a low potential for transparency
“First of all, the clinical director gets his own data. He does not get the data of the neighboring department.”	Providing clinical directors with only their own data	Availability of performance for individual departments only	
“A department can only function – and that’s what it’s all about, right? – if the data supply one receives is comprehensive, but also reliable. Decisions must be made based on an economically sound base.”	Making decisions on an economically sound base	Supporting (profit-oriented) decision-making in clinical departments	Rationales for incorporating a high potential for transparency
“How does one find out if there is potential for savings? By comparing one department to another.”	Finding potential for savings by comparing departments to another	Triggering self-control, self-comparisons and intra-organizational competition with the aim to improve (financial) department performance	
“This system, which I have described. It ensures that there is high transparency. You know where we are heading. So, there is ultimately a commitment, ‘Come on, now we have to pull ourselves together for the last two months, then we’ll have everything.’”	Creating commitment due to high transparency	Reinforcing an inter-departmental perspective among physicians/commitment towards hospital objectives	
“Above all, the CEO aims at transparency and wishes that the employees produce ideas.”	Aiming at transparency and wishing that employees produce ideas	Initiating ideas about the hospital’s further development	

Exemplary interview statements	Exemplary first-order codes	Second-order categories	Theoretical dimension
“I don’t want the surgeon telling the psychiatrist ‘I’m subsidizing you’ or the urologist telling the oral surgeon ‘I’m subsidizing you’. I don’t want that.”	Preventing clinical directors from accusing each other of subsidization	Concealing negative contribution margins of departments and according cross-subsidies between departments	Rationales for incorporating a low potential for transparency
“We do not want to trigger a dysfunctional competition, so no one thinks: ‘I lean back, because other departments perform worse.’”	Not triggering dysfunctional competition	Avoiding dysfunctional competition based on self-comparisons between departments	
“We avoid competition between the departments, as well as generating claims. If we, for instance, report that one department has a positive contribution margin of plus 500,000 Euro and another a negative one of minus 100,000 Euro, the director of the first one might claim, ‘I have plus 500,000, so I wish to hire an additional doctor; I need my department to get refurbished. I am generating the profits.’”	Avoiding competition between departments and generating claims	Avoiding empowerment of physicians and according senses of entitlement	
“It is of course a delicate story to explain to a clinical director how the infrastructure costs that we allocate to his department are distributed”	Avoiding explanations regarding the allocation of infrastructure cost	Avoiding discussions with physicians about the reliability of performance measures	
“We can only set a cost target for those responsible for the costs that they can influence. So, you have to think about how far you make this breakdown.”	Setting cost targets only for costs that physicians can influence	Avoiding discussions with physicians about the controllability of performance measures	

Exemplary interview statements	Exemplary first-order codes	Second-order categories	Theoretical dimension
"First and foremost, it is relatively informative, in terms of a self-control measure."	Perceiving performance measures as relatively informative and a self-control measure	Perceiving performance measures as informative	Perceptions of a high potential for transparency
"I look into it. It is also presented to us in the clinical directors meeting. But that's nice to have for me and nice to look at. But I cannot take something from it."	Not taking something from the performance measures	Perceiving performance measures as not enabling	
"We can't change many things anyway. We swallow it or take note of it. I can't change anything about the occupancy statistics. At the most, I can make the patients stay for an additional day."	Taking note of the occupancy statistics with little ability to change them	Perceiving performance measures as not controllable	
"Well, sometimes you have figures that are difficult to map. And if you question them, they are sometimes difficult to answer."	Mapping figures is difficult	Perceiving performance measures as difficult to understand	
"I expect a structured knowledge exchange so that I can work with the data. How the hospital and the department benefit from it."	Expecting structured knowledge exchange to work with the data	Expecting more support in utilizing and interpreting performance measures	
"We have certain discrepancies in the number of examinations. On the one hand, in the number of colonoscopies, gastroscopies, on the other hand, we perform services that are not shown at all."	Having discrepancies in the numbers of examinations	Perceiving performance measures as not reliable	

Exemplary interview statements	Exemplary first-order codes	Second-order categories	Theoretical dimension
“The permeability of information is relatively low, which I don’t think is good, because we could certainly be much more supportive in some things.”	Limited ability to support due to low permeability of information	Perceiving a lack of empowerment due to a lack of information	Perceptions of a low potential for transparency
“For us, it is always difficult to argue in terms of staffing. We hear ‘Everything costs, so expensive.’ If I could say then ‘It’s all great. We earned 20% more last year, so an additional position should be possible.’ So, that would be a steering mechanism that I can use only if I know it.”	Difficulties in arguing about staffing	Weakening bargaining position in negotiations with administrators	
“If an internist treats the patient in the emergency room, he will probably transfer him to the internal medicine department to get this case. But the hospital would probably earn more if the patient was transferred to the geriatric medicine department.”	Transferring patients to one’s own department, even if hospital could earn more by transferring them to another department	Prioritizing departmental objectives over the objectives of the hospital	Responses to a high potential for transparency
“For example, you know that a surgery takes 300 min, but you only write it down as 200 in the surgical planning, so you can schedule two surgeries.”	Specifying incorrect surgery times to perform more surgeries	Boosting departmental resource claims	

Exemplary interview statements	Exemplary first-order codes	Second-order categories	Theoretical dimension
“So I would say that the problem of information asymmetry is persistent. I don’t think that it is always the instrument to get out of it, but sometimes they are like, ‘I do not have the information now, I did not have it with me, I did not prepare it. I was not told.’ So you just sit there and don’t have this information and can’t continue working on it.”	Citing information asymmetries to justify a lack of preparation	Utilizing low information as a shield against financial accountability	Responses to a low potential for transparency

For illustrative purposes, this table presents one exemplary first-order code for each second-order category. It should be noted, however, that during the synthesis process, multiple first-order codes were frequently merged to form a single second-order category

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