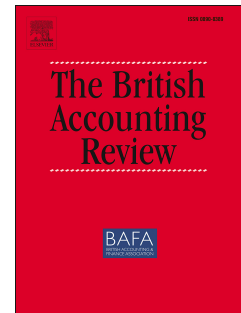


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Hospital Management Accounting Systems: Evolving Roles, Actors, and Interactions

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Declaration of interests

☒ The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Hospital Management Accounting Systems: Evolving Roles, Actors, and Interactions

Abstract

Seeking to offer an integrated understanding of Hospital Management Accounting Systems (HMAS) dynamics—through a synthesis of 196 studies on management accounting in public healthcare since 1980—we provide critical insights into HMAS roles—diagnostic, interactive, culture shaping, political, and symbolic—and their interconnections, shedding light on their (in)effectiveness in relation to relevant actors. The review highlights that different actors contribute significantly to the diverse roles of HMAS, while these roles—if functioning as mechanisms for meaningful change—in turn, impact their activities, managerial awareness, and power relationships. While being criticised for unintentionally intensifying value conflicts, HMAS changes reportedly have long-term impact on shaping organisational culture and reconciling values within broader public management transformations. It underscores the need for the longitudinal perspectives to better capture a holistic insight of the evolving roles and effectiveness of HMAS in empirical research. In this regard, the analytical framework we employed for examining the (in)effectiveness of HMAS and the underlying reasons through actors, roles, and interactions could provide a foundation for future empirical studies. Practically, this review advocates for greater involvement of medical professionals and patients in HMAS, promoting changes that balance flexibility with accountability while respecting medical professionals' autonomy through an interactive approach.

Keywords: Healthcare sector; Roles of management accounting system; Actors; Interactions; Literature review

1. Introduction

Understanding the public healthcare system is essential for evaluating how resources are allocated to maximise efficiency and effectiveness in delivering medical services, which is fundamental to social sustainability (United Nations, 2015). Management reforms have unfolded in public healthcare sectors worldwide over the past decades, such as the UK's star rating system for NHS service quality (Chang, 2006), Activity-Based Costing (ABC) in France (Alcouffe, Berland, & Levant, 2008), Balanced Scorecard (BSC) in Sweden to balance internal and external expectations (Aidemark & Funck, 2009) and the costing reforms introduced in China (Cui, Li, & Al-Sayed, 2019). However, healthcare delivery continues to defy the drive for efficiency, effectiveness, and accountability. Researchers have highlighted that healthcare reforms aimed at translating business-like practices have failed to produce the desired changes (Mauro, Cinquini, & Pianezzi, 2021). The collapse of healthcare delivery systems in many countries during the recent COVID-19 pandemic has exposed the inflexibility of healthcare providers in managing resources in response to emergencies (Nacoti, Ciocca, & Giupponi, 2020). The significance of public healthcare and the ongoing critical dialogues on the effectiveness of public healthcare reforms shape the focus of this literature review, which explores the roles and (in)effectiveness of management accounting systems (MAS) within the public healthcare context.

The context of public healthcare—funded by the government, serving the public, and operated by professionals—demonstrates the complexity of the actors involved (Fiondella, Macchioni, Maffei, & Spanò, 2016; Major, Conceição, & Clegg, 2018). This unique environment presents practical challenges for designing and implementing hospital management accounting systems (HMAS), as changes are often government-driven, and the demands of external and internal actors may differ and not always align with one another (Modell, 2001; Morinière & Georgescu, 2022; Rautiainen, Mättö, Sippola, & Pellinen, 2022; Wickramasinghe, 2015). For example, studies have documented that the control systems installed in hospitals—driven by productivity agenda stemming from the New Public Management (NPM) reform period—have

distorted the social aims of health care and cause tensions and problems (Cardinaels & Soderstrom, 2013; Llewellyn & Northcott, 2005). Some advocate for a transition from MAS unilaterally focused on cost and productivity to a more nuanced and participative system that builds on the cooperation and inclusion of health professionals and patients¹ (Malmrose & Kure, 2021; World Health Organisation, 2000). Therefore, the roles of HMAS and their effectiveness are continually influenced by various external and internal actors, as demonstrated by the ongoing discourse on NPM, which is still considered thriving in some countries (Lapsley, 2022) but declared dead by some scholars in others (Funck, 2024).

Given these complexities, valuable opportunities arise for research into the various roles of HMAS and their (in)effectiveness in relation to the interactions² with both internal and external actors. Some quantitative studies, primarily in the US and European contexts (e.g. Eyring, 2020; Macinati, Rizzo, & Hoque, 2022; Pflueger, 2016), have examined the roles of various actors, such as senior managers and medical departmental managers, in shaping HMAS. However, such studies remain limited in number and often rely on questionnaires as a data collection technique, which lacks the depth needed to fully understand how these actors interact with HMAS. In contrast, other studies on HMAS employ case study methods, providing rich insights into the roles of HMAS and the interactions between various actors and HMAS (e.g. Carr & Beck, 2022; Kraus, Kennergren, & von Unge, 2017). While these studies offer valuable in-depth insights, they are constrained by their focus on specific roles, techniques, and actors within particular contexts, often discussed in isolation. Consequently, findings on these issues remain fragmented, and a comprehensive understanding of the

¹ Prior studies show increasing patients' involvement in hospital management control—through mechanisms such as quality surveys or patient feedback—to truly reflect their voices (Pflueger, 2016; Reilley, Balep, & Huber, 2020).

² In the context of our study, 'interaction' refers to the dynamic relationships between various actors and HMAS, influencing actors while also shaping HMAS design and its effectiveness in implementation. While readers may associate this concept and the terminologies we used—actors and interactions—with Actor-Network Theory (ANT), we do not employ them in the specific theoretical sense of ANT.

interrelationships between the diverse roles of HMAS and relevant actors is lacking. Such a comprehensive understanding is crucial to advancing knowledge of multifaceted roles management accounting practices may play in an organization when responding to institutional complexity (Amans, Mazars-Chapelon, & Villesèque-Dubus, 2015; Gerdin, 2020), as well as informing policy and practice to enhance the effectiveness of HMAS.

Earlier reviews of studies in healthcare settings offer insights into the roles of HMAS from an economic theory perspective (Eldenburg & Krishnan, 2007), or through a more comprehensive combination of behavioural/organisational theories and sociological/critical perspectives (Abernethy, Chua, Grafton, & Mahama, 2007). More recent reviews, however, shed greater light on how certain actors respond to these management accounting practices. For example, Malmrose (2018) systematically reviewed the different stakeholders studied in healthcare accounting research but provided limited insights into their interactions with the roles of HMAS. Anessi-Pessina, Barbera, Sicilia, and Steccolini (2016) focus on budgeting within public healthcare, emphasising its multifaceted nature; however, their study is restricted to a single management accounting technique. Oppi, Campanale, Cinquini, and Vagnoni (2019) examine how clinicians, including doctors and nurses, utilise and perceive accounting information systems (AIS) within healthcare organisations, yet their analysis is concentrated solely on clinicians without considering other crucial actors involved in AIS changes such as government officials and internal managers. Overall, these reviews primarily focus on a limited range of actors and individual accounting practices, lacking comprehensive discussions on the interactions between various actors and HMAS, which is an essential aspect for understanding the (in)effectiveness of HMAS.

Thus, this review aims to develop a comprehensive understanding of the multifaceted roles of HMAS, their interrelationships, and how various actors both influence and are influenced by these potentially interconnected roles. More specifically, we address the following research questions:

Q1. What roles do HMAS assume following management accounting reforms?

Q2. How do these roles interconnect within the complex and dynamic healthcare context?

Q3. How do interactions between diverse actors and HMAS shape the multifaceted roles of HMAS and their (in)effectiveness?

To address the above questions, we aggregate and analyse studies published between 1980 and 2022, covering key New Public Management (NPM) reform periods in various countries (Ferlie, Ashburner, Fitzgerald, & Pettigrew, 1996; Hsu & Qu, 2012). By reviewing and synthesising the 196 papers relating to these three questions, our research makes significant contributions to the existing body of literature in several ways.

First, this review synthesises prior research on the diagnostic, interactive, culture shaping, political, and symbolic roles performed by HMAS, highlighting their interconnected nature. It shows how the culture shaping roles of HMAS substantially influence intra-organisational values and beliefs, extending the findings of Chenhall, Hall, and Smith (2017) regarding the active roles of MCS in expressing values into healthcare context. It also reinforces the findings of earlier studies by applying a combined lens of organizational and sociological perspective to examine the roles (e.g. Abernethy et al., 2007). Moreover, this review draws attention to the fact that the roles of HMAS are often interconnected, mutually reinforcing or reshaping, extending literature on the interrelationships between different roles (Baxter & Chua, 2003; Chenhall, 2003, 2017).

Second, this review further illustrates how interactions among diverse actors and evolving HMAS roles influence each other and the (in)effectiveness of HMAS. It broadens the scope of earlier reviews by considering a wider array of management accounting techniques and involving a more extensive range of actors in the analysis (Anessi-Pessina et al., 2016; Oppi et al., 2019), addressing the issue raised by Abernethy et al. (2007) regarding privileging of some actors over others, especially patients. Our findings show that the disproportionate influences of governments during

HMAS design and implementation frequently result in the system serving symbolic purposes rather than improving management practices. However, as symbolic and political roles are often seen as barriers to effective reform, they can also play a constructive role by engaging marginalised actors, such as patients, and fostering dialogues between conflicting actors. Thus, the challenge lies in ensuring that these roles do not become ends in themselves but rather serve as mechanisms for meaningful change. This extends Eldenburg and Krishnan's (2007) discussion on the effectiveness of public policymaking from a US-focused setting to the more diverse HMAS reforms observed in non-US contexts. It underscores the necessity for more in-depth empirical studies examining such topics across different contexts, as well as the adoption of a longitudinal perspective to study HMAS's roles and their effectiveness. In this regard, the analytical framework we employed in this paper for examining the (in)effectiveness of HMAS and the underlying reasons through actors, roles, and interactions could also provide a foundation for future empirical studies.

Practically, this review identifies risks in the design and implementation of HMAS that may impact its (in)effectiveness, advocating for the greater involvement of both medical professionals and patients. It underscores the need for governments and senior hospital managers, as promoters of HMAS changes, to allow flexibility and engaging medical professionals in ways that respect their autonomy while also ensuring accountability. This can be achieved through an interactive approach to the design and implementation of HMAS.

The remaining sections are structured as follows. Section 2 describes the review methodology and presents descriptive data on the reviewed papers. Section 3 addresses research questions 1 and 2, while Section 4 presents findings related to research question 3. Finally, section 5 concludes the review.

2. Review method and descriptive data

We conducted a review of the HMAS literature, focusing on the diverse roles of HMAS and their interactions with a variety of actors. Since studies on these topics do

not always use specific terms such as “roles,” “actors,” or “interactions”, we began with a systematic literature review approach to comprehensively identify, appraise, and synthesise all relevant studies on the topic (Petticrew & Roberts, 2008).

2.1 Method

Following systematic review methods employed in previous studies (e.g., Funck & Karlsson, 2020; Oppi et al., 2019; Petticrew & Roberts, 2008), we conducted the review in four main steps.

2.1.1 Evaluating the criteria for articles and journals

To focus on the diverse roles of HMAS and their interactions with a variety of actors, we first included all articles published within the field of management accounting related to public healthcare. The selection of articles was based on four criteria: a) the article was published in English; b) the publication date was between 1980 and 2022, covering the key NPM reform periods in various countries (Ferlie et al., 1996; Hsu & Qu, 2012); c) the article was peer-reviewed and published in top-ranked academic journals; and d) the topic addressed management accounting and public healthcare.

Following the reviews by Garanina, Ranta, and Dumay (2022) and Zengul, Oner, Byrd, and Savage (2021), we adopted the rating systems from the Australian Business Deans Council’s (ABDC) Journal Quality List and the Academic Journal Guide 2021 (AJG2021), published by the Chartered Association of Business Schools, as proxies for journal quality in accounting and public management. Journals ranked ‘A’ and ‘A*’ in the ABDC list and those ranked ‘3’ and above in the AJG2021 list were selected. The SCImago Journal Rank (SJR) was used to assess the quality of healthcare journals based on citation frequency over the previous three years (Falagas, Kouranos, Arencibia-Jorge, & Karageorgopoulos, 2008). We obtained the initial search results of papers from 25 accounting journals, 2 public management journals, and 5 healthcare journals for this review.

2.1.2 Conducting literature searches

Following previous review papers (e.g., Cinar, Trott, & Simms, 2018; Mauro, Cinquini, & Grossi, 2017; Torchia, Calabrò, & Morner, 2015), we used Business Source Premier, Web of Science (Web of Science Core Collection), and Scopus as our main search platforms. The search was undertaken using article title, abstract, and keywords. Boolean logic was applied in the detailed searching process. To efficiently filter and refine the selection of papers relevant to our review, which intersects management accounting and public healthcare, we utilised the following keywords—*public healthcare* and *management accounting* for general relevance, and *performance management*, *cost management*, *budgeting*, and *accounting information*—to capture the diverse themes within management accounting topics (Scapens & Bromwich, 2010). The following search term combinations were used to help select relevant articles:

Search term combination 1: (performance measure* OR performance manage* OR performance evaluate* OR performance system*) AND (healthcare OR hospital* OR public health);

Search term combination 2: (costing OR cost management OR cost control OR cost measure* OR costing effectiveness) AND (healthcare OR hospital* OR public health);

Search term combination 3: (budget* OR accounting OR management accounting OR management control OR accounting information) AND (healthcare OR hospital* OR public health).

The initial search phase across these databases yielded 1208 papers from the 32 journals that met the journal criteria outlined in the previous step.

2.1.3 Screening the results and assessing the quality of the selected articles

Our research team then conducted a meticulous manual screening. We thoroughly examined the titles, abstracts, keywords and, where necessary, the full texts of these papers to assess the relevance of the papers to our research questions. From the screening, 637 were excluded due to duplication and 388 were deemed irrelevant to our

research questions. Concurrently, reference mining was employed as a supplementary strategy to identify any potentially overlooked papers from the reference lists of relevant papers, leading to the inclusion of 13 additional papers, resulting in a total of 196 papers distributed across 23 accounting journals, 2 public management journals, and 3 healthcare journals (Table 1).

Insert Table 1 about HERE

2.1.4 Synthesising the findings

Following the process employed by Hoque (2014), this analysis and synthesis of the findings first present a brief overview of the characteristics of the reviewed articles, focusing on their geographical context, research methods, fundamental theories, and research focus. This is followed by coding and thematic analysis aimed at addressing the key research questions. The thematic analysis identified common themes emerging from close readings of the selected articles (Funck & Karlsson, 2020; Oppi et al., 2019). Two main themes were synthesised based on our research questions: 1) the interconnected roles that HMAS have assumed following changes in management accounting and 2) the interactions between diverse actors and HMAS changes on shaping the roles. Findings related to these two themes are presented in Sections 3 and 4, respectively.

2.2 Presentation of descriptive data

This literature review covers 196 papers distributed across 28 journals from the fields of accounting, public management, and public healthcare, as illustrated in Table 1. Among the journals, Financial Accountability and Management (FAM), known for its unique focus on public sector research, published the highest number of papers. This is followed by Management Accounting Research (MAR), Accounting, Organizations and Society (AOS), Accounting, Auditing and Accountability Journal (AAAJ), and European Accounting Review (EAR). In addition, while most papers have been published in highly rated accounting and management journals, it is worth noting that HMAS research has also appeared in the public healthcare literature.

2.2.1 Geographical context

The geographical context of the reviewed studies is presented in Table 2, following the categorisation by Broadbent and Guthrie (2008). The majority of the research focuses on Anglo-Saxon contexts (58%), with 46 papers investigating the UK, 37 from North America, and 25 from Australasia. With regards to non-Anglo-Saxon countries, the Nordic region (35 articles) and other European countries (32 articles) are prominently discussed, while there is limited attention to Asian (8 articles) and African countries (1 article). The findings also reveal a lack of research on comparative analysis between different countries, comparative analysis using large-scale data on management accounting reforms, and studies on developing countries.

Insert Table 2 about HERE

2.2.2 Research methods

The distribution of research methods of the reviewed papers is illustrated in Table 3. Confirming previous findings (e.g., Funck & Karlsson, 2020; van Helden, 2005), qualitative approaches are the most frequently employed, with 112 articles out of 196 primarily involving multi-source studies. Approximately 20% of the sample papers used quantitative approaches, with surveys as the predominant data collection method. Despite scholars advocating for hybrid approaches (Ahrens, 2008; Modell, 2005, 2010; Vaivio & Sirén, 2010), only 11% of the articles in our sample adopted mixed methodologies.

Insert Table 3 about HERE

2.2.3 Fundamental theories

Table 3 also presents the theories applied in the reviewed papers. Following the classification of theories in prior research (e.g., Anessi-Pessina et al., 2016; Baxter & Chua, 2003; Burrell & Morgan, 2019; Hopper & Powell, 1985), our analysis categorised the theories into two main groups: positivism and interpretivism. Additionally, we identified two further categories: research without explicit theoretical

foundations and hybrid theories which blend positivistic and interpretive approaches (Anessi-Pessina et al., 2016).

The dominant theory is institutional theory, particularly new institutionalism, which plays a crucial role in this field (39 articles), as it provides insights into how individuals and institutions interact (Chang, 2006; Järvinen, 2016). The Latourian approach, applied by 11 articles, examined the effects of both human and non-human entities (such as MAS or operational mechanisms) on transitional processes. 10 articles applied radical theories, utilising the frameworks of communicative action and power to investigate how management accounting is shaped in hospital settings.

We also observed the application of positivistic theories, such as agency theory in several performance management (PM) studies (e.g., Ballantine et al., 2008; Mahlendorf, Kleinschmit, & Perego, 2014) and contingency theory in understanding how the MAS fits within organisational contexts for designing an effective MAS (e.g. Abernethy & Stoelwinder, 1991; Pizzini, 2006).

Our review highlights the limited application of hybrid theories in healthcare management accounting research, with a few exceptions, such as the work of Pettersen and Solstad (2014). Confirming the findings of Malmrose (2018), 29% of the papers did not adopt any explicit theoretical frameworks.

2.2.4 Research focus

Figure 1 illustrates the number of publications across various HMAS topics since the 1980s, when management accounting reforms were implemented in the public healthcare sector. Coinciding with the global adoption of NPM, cost management and budgeting were the primary research foci, with substantial contributions until 2010. Research into performance measurement and management has notably increased since the 1990s and became dominant after 2010, supporting the argument that PM is essential for modernising public hospital management (Lapsley, 2001a). This shift also reflects the increased focus on enhancing the efficiency and effectiveness of public healthcare, particularly following the 2008 financial crisis.

Insert Figure 1 about HERE

Overall, the review of these articles highlights a wide range of research on the roles of HMAS and how such roles are shaped by a variety of actors. However, the findings remain fragmented. The reviewed studies primarily focus on specific geographical settings and particular management accounting techniques. They are also limited to the use of either qualitative or quantitative research methodologies and isolated theoretical frameworks, which fails to fully account for the complexities and interconnections underlying the outcomes of various management accounting practices and reforms over time. Fortunately, the diversity in methods, theories, and approaches employed in the existing research since 1980s enables a more comprehensive and in-depth analysis of how the interactions between different actors and changes in HMAS contribute to its evolving roles and the subsequent impacts on relevant actors. Hence, this review synthesises prior research on the multifaceted roles of HMAS, as outlined in Section 3, and explores the interactions between actors and HMAS changes, as discussed in Section 4. These ongoing interactions are critical in shaping the evolving functions of HMAS and their effectiveness on shaping actors.

3. The multifaceted and interconnected roles of HMAS

Given that cost management and budgeting were the dominant research themes until the late twentieth century (as shown in Figure 1), it is unsurprising that the diagnostic and interactive roles of HMAS in facilitating strategic changes in hospitals have received significant attention. However, the complex public healthcare context—with its multi-dimensional goals and potentially conflicting interests—has also drawn attention to the culture shaping, political, and symbolic roles of HMAS. The key foci for each of these roles, along with the relevant studies, are summarised in Table 4.

Insert Table 4 about HERE

3.1 The multifaceted roles of HMAS

3.1.1 Diagnostic roles

The diagnostic roles of HMAS focus on monitoring organisational activities and ensuring that the outcomes align with the predetermined objectives. This involves the use of standard performance measures and variance analysis to identify and correct deviations from targets, thereby enhancing efficiency and effectiveness in routine operations (Simons, 1995). Given that the use of management accounting practices in public hospitals has been promoted by top-down NPM initiatives in many countries, with an emphasis on efficiency and accountability, diagnostic control is an essential function for HMAS.

Empirical evidence shows how governments and hospital management use HMAS to influence professional behaviours, aligning them with hospital objectives and promoting efficiency through functions such as planning, reporting, and monitoring (see Table 4 for relevant references). For example, Eldenburg (1994) demonstrates how the US government effectively employed methods such as restricting cost shifting and leveraging cost information to create implicit controls, aiming to ensure cost containment and efficiency in hospitals. Conrad and Guven-Uslu (2011) observe that the introduction of Payment by Results in the UK became an instrument through which management could exert influence and enforce compliance with financial targets among professionals. HMAS have also been shown to help decision making and performance management (Abernethy & Vagnoni, 2004; Coombs, 1987; Llewellyn & Northcott, 2005), hold internal departments accountable for their outcomes (Kastberg & Siverbo, 2013), and make internal cost situations visible to the public and policymakers (Gebreiter & Ferry, 2016). Nevertheless, research also shows that diagnostic control led to internal conflicts between professionals and management (Conrad & Guven-Uslu, 2011).

More recently, the focus of diagnostic control has shifted from merely cost control to identifying and addressing organisational inefficiencies and challenges in order to

improve overall hospital performance (Kaplan & Witkowski, 2014; Kastberg & Siverbo, 2016; Moynihan, Baekgaard, & Jakobsen, 2020; Padovani, Orelli, & Young, 2014). Kaplan and Witkowski (2014) argue that valid cost information enables managers and clinicians to standardise clinical and administrative processes by eliminating non-value added and redundant steps, thereby improving resource utilisation. Kastberg and Siverbo (2016) suggest that HMAS facilitate identifying operational flaws and prompting discussions about necessary changes, which leads to new reflections on the need for organisational adjustments.

Overall, the effective diagnostic control of HMAS reportedly leads to goal alignment, rational decision making, and the identification and resolution of problems. However, the effectiveness of HMAS appears to be contingent upon their internal design and use. For example, their diagnostic utility could be constrained due to the perceived irrelevance of the practice by different levels of managers (Kastberg & Siverbo, 2013) and the weakness in the design of the system itself (Llewellyn & Northcott, 2005). In Jacobs, Marcon, and Witt's (2004) comparative study of HMAS in Germany, Italy, and the UK, they observe that the effectiveness of cost control has also been affected by clinical staff's access to cost and performance information. Furthermore, the diagnostic roles of HMAS have also been at the central to the criticism against NPM for their negative impact on trust between managers and professionals (Conrad & Guven-Uslu, 2011; Lapsley, 2022; Funck, 2024).

3.1.2 Interactive roles

Interactive control involves regular and frequent engagements, fostering communication and dialogues across different levels in an organisation. Such continuous interactions help address strategic uncertainties and facilitate the ongoing adaptation of strategies (Abernethy & Brownell, 1999; Simons, 1995). The interactive roles of HMAS have been emphasised in prior studies for fostering intra-organizational dialogues, facilitating organisational learning, and translating strategies.

Previous empirical evidence emphasises that interactive control—through regular and frequent engagement with different actors at different stages of HMAS changes—fosters dialogues and debate among individuals with diverse values to promote compromise, which, in turn, enables the diffusion of HMAS changes (see Table 4 for relevant references). The interactive roles of HMAS may appear as early as the design stage. For example, Aidemark and Funck (2009) observe that an interactive design of the Balanced Scorecards (BSCs) is tailored to meet both administrative and clinical needs, balancing financial objectives, patient care, and staff development, thereby leading to successful organisational reforms. In the implementation of HMAS, building and maintaining the actor networks, consisting of various human and non-human elements, can mobilise innovation diffusion support (Alcouffe et al., 2008). In daily operations, the interactive use of HMAS assists managers to navigate the complexities inherent in healthcare processes (Kastberg & Siverbo, 2013) and helps to engage different actors with varying values, which is crucial for effective accounting utilisation (Abernethy & Brownell, 1999; Järvinen, 2006, 2016; Leotta & Ruggeri, 2022). Furthermore, HMAS could also play interactive roles by mediating between multiple and conflicting demands and objectives from both internal and external sources in hospital operations. For example, through the perspective of institutional logic theory, Järvinen (2006) and Leotta and Ruggeri (2022) propose that HMAS could act as a negotiation tool to communicate between different logics and further mediate them via accounting practices. Other studies, such as Jones and Mellet (2007), Kurunmäki and Miller (2011), Morinière and Georgescu (2022), and Wickramasinghe (2015), also discuss how HMAS perform as mediating instruments in mitigating tensions between different actors and promoting hybridisation between managerial and professional awareness, although they might ultimately increase tensions in some cases (Morinière & Georgescu, 2022).

Research also shows how continuous interaction through HMAS helps to establish a collaborative space for internal groups, facilitating organisational learning and performance improvement (see Table 4 for relevant references). Buckmaster and

Mouritsen (2017) demonstrate how the interactive use of benchmarking enables learning and performance improvement by providing a space for healthcare professionals to share practices, discuss problems, and collaboratively develop solutions. The interactive roles of HMAS foster a collaborative management style that involves professionals, improving their understanding and enhancing the effective use of HMAS (Aidemark, 2001b; Eldenburg, Soderstrom, Willis, & Wu, 2010; Kelly, Doyle, & O'Donohoe, 2015), as well as improving internal communication and efficiency (Lowe, 2001b).

It is noteworthy that the views and empirical evidence on the interactive roles are not always positive. For example, Østergren (2009) suggests that clinical managers who used the accounting control system in an interactive way tended to interpret top-down information more vaguely and ambiguously, leading to strategic ambiguity. Moreover, organisational learning does not always align with the original objectives of management accounting changes. For instance, Pettersen (2001) describes a situation where hospital budgets have increased over the years due to the implementation of a new budgeting system, because hospitals have learned to address resources needs by overspending on their budgets.

Overall, interactive roles of HMAS could foster regular engagement across organisational levels, facilitating dialogues and addressing strategic uncertainties. They play a crucial role in mediating conflicting objectives and promoting learning, potentially contributing positively to Trust-based Management within post-NPM era (Lapsley, 2022). However, these effects are not always fully aligned with organisational goals.

3.1.3 Culture shaping roles

An enhanced understanding of HMAS by internal actors, achieved through an interactive approach, has facilitated the introduction and strengthening of managerial and accountability cultures within healthcare organisations, highlighting HMAS's roles in culture shaping. In public healthcare, HMAS are instrumental in instilling new values

and priorities across the organisation, thereby enhancing accountability and managerial awareness among both management and medical professionals. A group of studies demonstrates that HMAS can transcend their technical function by embedding governance philosophies and practices that foster deeper cultural transformations and shifts in strategic priorities within hospitals (Broadbent, 1992; Fiondella et al., 2016; Goddard, 1992; Malmrose, 2015). For instance, it has been observed that the introduction of HMAS changes has been associated with the development of a new business culture that emphasised efficiency, quality, and accountability (Broadbent, 1992; Fiondella et al., 2016).

Some studies examining the long-term application of HMAS in public hospitals suggest that HMAS can ultimately cultivate a culture of accountability and management within both management and professional groups. For example, Aidemark and Funck's study (2009) demonstrates how a decade-long use of BSC in a clinic setting fostered a measurement culture, where medical professionals appreciate the value of measurement-based management in improving healthcare quality. Similarly, Gebreiter (2022) observes the hybridisation of clinicians, where economic and managerial rationales increasingly guide clinical decision making.

Interestingly, linking back to the findings of interactive roles, both Aidemark and Funck (2009) and Gebreiter (2022) suggest that the downplayed link between management accounting innovation and cost-effectiveness helped to build and retain support for these reforms amongst clinicians. In a similar vein, but with a failed case, Rautiainen et al. (2022) illustrate how individual dissatisfaction with accounting innovations in a context of conflicting institutional logics—such as the professional logics of healthcare providers clashing with administrative logic and political logic—created frustration and drove the segregation of professional groups. This illustrates how—when not carefully managed—HMAS reforms can exacerbate tensions instead of promoting cohesion, ultimately failing to shape culture effectively. Extending this focus, Morinière and Georgescu (2022) introduce the role of moral concerns in performance measurement. Their case study of a French public hospital demonstrates

that combining managerial and professional values can serve as both a productive and destructive force. As a result, performance measures play a central role in reconciling divergent values, but they can also intensify tensions, if not properly aligned with the underlying professional culture.

Thus, this line of research underscores that promoting culture change should begin with a deep understanding of and respect for the existing culture while also acknowledging cognitive responses and divergent values (Leotta & Ruggeri, 2022; Morinière & Georgescu, 2022; Rautiainen et al., 2022).

3.1.4 Political roles

The political roles highlight HMAS as tools for establishing, distributing, maintaining, and challenging power relationships within organisations (see Table 4 for relevant references), providing a platform for legitimising actions and negotiating power between professionals and management (Carr & Beck, 2022; Covaleski & Dirsmith, 1983; Doolin, 1999). Budgeting—which involves resources allocation, prioritisation, and performance evaluation—is particularly central to understanding the political roles of HMAS. Managing a budget does not inherently confer power, as the design of budgeting systems can serve as a mechanism for balancing or constraining power. For example, in Covaleski and Dirsmith's (1983) case study, nurse managers with budgetary responsibilities were limited by restricted access to critical information, which hindered their ability to fully engage in advocacy-oriented roles, thus reflecting a subtle form of power maintenance within the organisation. While this may not be an overtly conscious tool for preserving power, the budgeting process contributed to the maintenance of the status quo in these hospitals.

Nevertheless, in many other cases, the use of HMAS leads to shifts in power. In knowledge-intensive organisations like hospitals where medical professionals traditionally hold significant power, HMAS can enhance information transparency, thereby increasing the negotiation power of general managers. Both Covaleski, Dirsmith, and Michelman (1993) and Jackson, Paterson, Pong, and Scarparo (2014)

suggest that the adoption of management accounting initiatives can shift power from medical practitioners towards hospital administrators. This shift occurs because these systems make the financial implications of medical decisions—such as patient admissions, treatments, lengths of stay, and discharges—more transparent, allowing administrators to exert greater control. Additionally, departmental managers can use case-mix accounting data to advocate for their units, leveraging the data to secure more resources. This illustrates how HMAS not only serve as a management tool but also as a mechanism for shifting negotiating power within healthcare organisations. In Carr and Beck's (2022) case, the power relationship between management and professionals becomes more flexible under accounting changes. Accounting practices were used to temporarily shift power towards managers in crisis, enabling them to better manage resources. However, once the crisis subsided, power was reassigned to clinicians, restoring their traditional authority.

While this review focuses on studies at the hospital level, the political roles of HMAS in balancing power relationship between hospitals and governments are noteworthy. Prior studies suggest that HMAS have been employed by governments to exert more control over healthcare and to defend the governing party's political ambitions by interpreting and promoting political shifts through HMAS reforms (Bobe, Mihret, & Obo, 2017; Chang, 2009, 2015; Cui et al., 2019). For example, Chang (2015) criticises how political interests shaped new performance measurement reforms, with then New Labour utilising these reforms as a source of power to boost its reputation for accountability. Meanwhile, Cui et al. (2019) demonstrate how accounting practices can also be leveraged to challenge policy decisions, showcasing their role in power shifting within specific institutional settings.

Overall, this review highlights the significant political roles of HMAS changes in public hospitals, which contribute to intentional or unintentional efforts to reconfigure power relationships among internal and external actors. Such roles of HMAS in power balancing between hospitals and governments often lead to the symbolic implementation of management accounting innovations.

3.1.5 Symbolic roles

Management accounting systems may be used as instruments to signify an organisation's commitment to rationality, legitimacy, and conformity with institutional norms (Meyer & Rowan, 1977). Prior studies have conceptualised the symbolic roles of HMAS in public hospitals as mechanisms for legitimising and rationalising operations, particularly in response to stringent controls imposed by governments (Kantola & Järvinen, 2012; Kraus et al., 2017; Macinati, 2010; Pettersen & Solstad, 2014). However, these symbolic roles might disconnect from daily activities (Arnaboldi & Lapsley, 2004; Guven-Uslu & Seal, 2019; Järvinen, 2006; Malmmoste & Kure, 2021) or be used to maintain the status quo (Agrizzi, Agyemang, & Jaafaripooyan, 2016; Hyvönen & Järvinen, 2006; Kurunmäki, Lapsley, & Melia, 2003; Lapsley, 1994).

Some studies suggest that HMAS may not always function effectively for control as intended (Pettersen, 1995); rather, they act as a buffer for internal operations to preserve the legitimacy of existing practices in the eyes of the external stakeholders (Abernethy & Vagnoni, 2004; Kraus et al., 2017; Malmmoste & Kure, 2021). This decoupling of operation practices from control objectives is observed, leading to findings that HMAS can be ineffective in improving efficiency and control due to their symbolic nature (Grafton, Abernethy, & Lillis, 2011; Malmmoste & Kure, 2021). Furthermore, the symbolic roles of HMAS can be more complex. Agrizzi et al. (2016) illustrate that, while hospital participants may comply with the accreditation requirements, they may also resist certain aspects of the process resulting in a reorientation of the reform. This demonstrates how the symbolic function of HMAS can coexist with practical challenges, offering a nuanced view of HMAS' impact on organisational practices and reform processes.

3.2 The interconnectedness of different roles

While the functionalist and non-functionalist explanations of the roles of accounting have long been recognised through prior management control system (MCS)

research (e.g., Chenhall, 2003; Chenhall et al., 2017), this review highlights the interconnectedness of the roles within HMAS.

Drawing from different MCS research perspectives (e.g., Baxter & Chua, 2003; Chenhall, 2003), diagnostic, interactive, and culture shaping roles are directly or indirectly instrumental as HMAS is designed to achieve rational economic and technical goals. Within this category, roles can be interconnected to varying degrees. For example, the implementation of a budgeting system designed for diagnostic control may also foster interactions and contribute to the shaping of organisational culture (Aidemark & Funck, 2009; Buckmaster & Mouritsen, 2017; Campanale & Cinquini, 2016). Conversely, culture shaping and the effective use of HMAS in an interactive way could be mutually reinforcing. The interactive use of HMAS involves communication and participation from different actors, which enhances their awareness of changes (Abernethy & Vagnoni, 2004; Buckmaster & Mouritsen, 2017; de Harlez & Malagueño, 2015; Fiondella et al., 2016; Lehtonen, 2007). This heightened awareness could further facilitate their engagement in supporting HMAS changes to address the diagnostic control requirements (Aidemark & Funck, 2009; Guven-Uslu & Conrad, 2011; Gebreiter, 2022; Macinati et al., 2022; Morinière & Georgescu, 2022). For example, Aidemark and Funck (2009) demonstrate how the interactive use of the BSC in a clinic—through the bottom-up construction of the meaning of ‘balance’ and the involvement of medical professionals in deciding performance measures—led to the successful implementation of the BSC which, in turn, promoted diagnostic control.

Furthermore, the emphasis of HMAS on diagnostic and interactive functions may also serve non-functionalist roles. For example, the introduction of star ratings in the NHS in the UK created a new shared language for performance assessment, fostering cooperation among accountants, managers, and clinicians, while these changes also mediated power relations between organisational actors, thus reinforcing the political roles of HMAS (Conrad & Guven-Uslu, 2012).

However, our review highlights a mixed view of the political and symbolic roles in interplay with instrumental goals. On one hand, the use of HMAS for advancing

governmental agendas at the expense of efficiency (Chang, 2009, 2015; Covalleski & Dirsmith, 1983) highlights concerns that such roles can lead to ineffective management accounting innovations. These critical perspectives emphasise how HMAS, when implemented unilaterally in a top-down manner, can be misaligned with the operational needs of public hospitals, thereby undermining efficiency (Chang, 2009, 2015; Guven-Uslu & Conrad, 2011; Wickramasinghe, 2015). This often results in a one-sided approach to HMAS changes that may not adequately address the unique challenges faced by hospitals. On the other hand, the political roles of HMAS in hospitals do not always negatively impact the achievement of efficiency goals. For example, Cui et al. (2019) observe the successful internalisation of costing systems in public hospitals in China, which led to improved cost control, despite the politically driven nature of the proposed management accounting changes. Similarly, Campanale and Cinquini (2016) introduce the concept of ‘reciprocal colonization’ (p. 2), highlighting a mutual influence between HMAS and clinicians’ interpretative schemes. In this process, HMAS become more clinician-oriented, while clinicians’ values and practices shift toward greater alignment with managerial awareness.

A similar perspective applies to the symbolic roles of HMAS. Several studies suggest that, while the symbolic roles of HMAS may influence the effectiveness of their instrumental roles to some extent, they are not mutually exclusive (Abernethy & Chua, 1996; Kraus et al., 2017; Macinati, 2010; Modell, 2001). For example, Abernethy and Chua (1996) highlight that HMAS transcends mere symbolism by playing a crucial role in transforming organisational culture, governance structures, and strategic management practices, thereby enhancing both legitimacy and operational efficiency. Kraus et al. (2017) suggest that HMAS reflect an organisation’s commitment to its organisational mission (effective service quality) while also addressing the legitimate requirements of external funders (efficiency). Similarly, Modell (2001) emphasises the intricate connection between seeking legitimacy and enhancing efficiency in the proactive responses of internal managers via HMAS changes. This suggests that, while

political and symbolic roles can influence HMAS outcomes, they do not necessarily preclude the achievement of efficiency objectives in hospital settings.

3.3 Summary

HMAS serve multiple interrelated roles—diagnostic, interactive, culture shaping, political, and symbolic—that extend beyond their functionalist purpose of achieving economic and technical efficiency. They shape organisational culture, influence power relationships, and uphold social legitimacy in public hospitals. On the one hand, while the imposition of financial rationality through HMAS frequently clashes with professional autonomy—leading to resistance rather than the constructive adaptation of changes—HMAS risk being perceived as tools of managerial dominance, exacerbating tensions between clinical and financial priorities. On the other hand, beyond their instrumental roles, HMAS serve as catalysts for cultural transformation and political negotiation, influencing intra-organisational values and beliefs, particularly in heterogeneous environments where competing values coexist. Our findings support the notion that HMAS reforms can foster accountability and managerial awareness among both departmental managers and medical professionals, addressing fundamental challenges within NPM or Post-NPM, particularly the reconciliation of professional autonomy with managerial control. While HMAS changes have been criticised for unintentionally intensifying value conflicts, our review underscores their significant long-term impact on shaping organisational culture and reconciling values within broader public management transformations.

More importantly, our review reveals that these multifaceted roles do not operate in isolation but rather interact in complex ways—at times reinforcing and at other times undermining one another. Research shows that the diagnostic and interactive use of HMAS may enhance financial oversight while also shape organizational culture through professional engagement. Additionally, HMAS reforms play critical political roles in public hospitals, actively reshaping power relationships among internal and external actors. These changes, rather than being mere exercises in “gaming,” can still

lead to meaningful, albeit imposed, transformations. The interdependence of these roles challenges the reductionist perspective that frames these roles as distinct or opposing and also highlights the necessity of a holistic approach in the design and implementation of HMAS.

4. The dynamic interactions between evolving roles of HMAS and diverse actors

Findings of prior studies on the multifaceted roles of HMAS and their interrelationship are demonstrated in the previous section. Drawing on prior research, this section synthesises the interactions between the interwoven roles of HMAS and various actors, highlighting how the attitudes and behaviours of key actors shape HMAS' roles (see Table 5) and, in turn, how these roles impact their behaviours (see Table 6).

4.1 Shaping the roles of HMAS: relevant actors

The primary actors identified include governments, hospital senior managers, medical departmental managers, medical professionals (both doctors and nurses), and patients.

Insert Table 5 about HERE

4.1.1 Governments

In many countries, governments play a central role in promoting management accounting reforms in hospitals, becoming a key driving force behind the diagnostic, political, and symbolic roles of HMAS (see Table 5 for relevant references). Their emphasis on accountability and efficiency in public healthcare has directly shaped the design of HMAS, prioritising diagnostic control. For example, in Italy, influenced by the government, several initiatives—such as diagnosis-related groups (DRGs), global budgets, and new performance measurement system (PMS)—focused on efficiency and cost reduction (Marcon & Panozzo, 1998). Similarly, the adoption of ABC in Finland university hospitals was a response to the governmental pressure for better cost awareness and efficiency (Järvinen, 2006). In the United Kingdom, Chang's studies

reveal how the Labour Government influenced NHS performance measurement systems from 1997 to 2007, using various frameworks and star ratings systems (Chang, 2006, 2009, 2015).

While governments are pivotal in driving accounting reforms as motivators and advocates, concerns arise regarding their disproportionate influence, which can potentially make HMAS more symbolic for legitimacy purposes or as power tools for advancing political agendas rather than being instrumental for internal improvement (see Table 5 for relevant references). For example, budget information is used mainly for ex post reporting, often decoupled from actual medical activities, thus making accounting a tool for justifying past actions rather than guiding future decisions (Pettersen & Solstad, 2014). Performance measurement systems have been criticised for focusing on showcasing government achievements rather than driving substantive reform (Chang, 2015; Conrad & Guven-Uslu, 2012), underlining the politicisation of HMAS. In Chang (2015)'s case, the New Labour government used NHS performance measurements (including waiting list and waiting time targets) as tools to demonstrate its accountability to the electorate, however, led to unintended negative consequence for patient care.

Thus, while HMAS reforms are often promoted by governments that define their diagnostic roles, this governmental influence has also become the source of HMAS' political and symbolic roles, contributing to the disconnection between the accounting systems and the actual medical activities within hospitals.

4.1.2 Hospital senior managers

Hospital senior managers, whether they come from a managerial professional background or have developed from a medical professional background, play critical roles in supporting and mediating the changes brought about by HMAS reforms (see Table 5 for relevant references). These changes—often driven by government mandates such as the UK's star rating system or Canada's lean management reform—position senior managers at the forefront of implementation, placing them under direct pressure

to adapt the new accounting practices (Allain, Lemaire, & Lux, 2021; Chang, 2009). Their attitudes and actions critically influence the acceptance of new HMAS in hospitals and their overall effectiveness (Jones, 2002).

Several studies suggest that senior management is willing to positively respond to external pressures, manage the tension between different values, and promote the integration of HMAS changes, thereby enhancing the likelihood that these changes fulfil their intended functional purposes (Begkos, Llewellyn, & Walshe, 2019; Järvinen, 2016; Kantola & Järvinen, 2012). For example, Järvinen (2016) recognises how senior managers mediate conflicting demands from governments, financiers, and internal professionals, while Kantola and Järvinen (2012) point out that senior managers proactively adopt systems like DRGs to improve cost management and operational efficiency. Leotta and Ruggeri (2017, 2022) also highlight the positive role of senior managers in aligning PMS innovations with organisational objectives, ensuring the effectiveness of HMAS' instrumental roles.

However, senior managers' attitudes toward government-initiated HMAS reforms can be complex. Prior studies show that senior managers reportedly adopt a strategic approach toward the government-imposed HMAS, selectively implementing components that are useful for internal management or aligned with local priorities while decoupling from the others (Chang, 2006; Kastberg & Siverbo, 2013; Robbins, Sweeney, & Vega, 2022). For example, Robbins et al. (2022) observe that senior managers valued standardisation for cross-hospital comparability but also desired flexibility to tailor processes to local needs, resulting in limited use of the accreditation system within hospitals. This selective use of accreditation systems reflects a balance between external mandates and internal management objectives, leading to a certain extent of symbolic use of HMAS.

Furthermore, when facing challenges from conflicting demands triggered by reforms, senior managers appear to interpret HMAS changes differently, potentially resulting in distorted and dysfunctional decision making and symbolic implementation

of changes, rendering those changes inefficient or ineffective (see Table 5 for relevant references). For example, in the case of implementing performance metrics in the UK aimed at reducing waiting times and increasing patient throughput, these targets were achieved, but they often came at the expense of patient care quality, local responsiveness, and professional discretion in decision making (Chang, 2009, 2015). When senior managers prioritise meeting top-down performance targets over problem-solving, it tends to lead to the disengagement of medical professionals from accounting practices (Moynihan et al., 2020), shifting the focus of HMAS from their functional roles to their symbolic roles.

Thus, hospital senior managers' attitudes and strategies in the implementation and use of HMAS significantly influence the focus and effectiveness of HMAS. How senior managers balance external demands with internal needs while fostering professional engagement is crucial to the effectiveness of HMAS in driving meaningful changes in hospital management. However, this remains a persistent challenge, particularly for government-imposed HMAS reforms. This review raises questions about the effectiveness of top-down approaches, especially when the government predominantly directs the launch of reforms. It highlights the importance of flexibility and adaptability to ensure these reforms align with external demands while remaining appropriate for the internal context.

4.1.3 Medical departmental managers

Medical departmental managers who hold both medical professional backgrounds and departmental management responsibilities serve as intermediaries between hospital administration and medical professionals. They navigate the tension between clinical decision making and economic goals. Moreover, they must balance both clinical and administrative logics, especially in environments where efficiency and cost control are highly prioritised alongside patient care. Their multifaceted responsibilities in subunit management, professional supervision, and personal practices make them a crucial mediator in integrating HMAS into daily operations (Fallan, Pettersen, & Stemsrudhagen, 2010).

Medical departmental managers often act as mediators between top management and frontline clinicians, navigating the divide between administrative expectations and clinical autonomy in the process of management control (see Table 5 for relevant references). Nyland and Pettersen (2004, p.11) propose that medical departmental managers wear two 'masks': a "budget mask" when communicating with administrators and a "clan mask" with clinicians, maintaining a balance between budgetary constraints and clinical autonomy. Through communication, medical departmental managers help clinicians to understand the importance of financial health for sustaining quality care (Begkos & Antonopoulou, 2022), translate societal expectations into budgetary practices (Fallan et al., 2010), and initiate and support HMAS changes through a more collaborative approach (Järvinen, 2006), thereby facilitating the diagnostic, interactive, and culture shaping roles of HMAS.

Employing institutional logics, several studies highlight how medical departmental managers reconcile clinical decision making and economic rationales, promoting the interactive use of HMAS (Aidemark, 2001b; Leotta & Ruggeri, 2022; Nyland & Pettersen, 2004; Padovani et al., 2014; Pettersen & Solstad, 2014). For example, Leotta and Ruggeri (2022) observe that medical departmental managers play a pivotal role in reconciling the clinical logic of healthcare provision with the administrative logic of efficiency and cost control in the context of PMS. Meanwhile, the ability to bridge competing logics allows medical departmental managers to significantly influence how HMAS are integrated into departmental daily management and professional behaviours, facilitating both control and accountability.

Nevertheless, in many cases, medical departmental managers prioritise their commitment to professional standards by using HMAS symbolically or politically (see Table 5 for relevant references). For instance, prior studies present evidence on medical departmental managers' resistance to HMAS changes (Padovani et al., 2014) and the decoupling between their responsibilities established by HMAS reforms and what they actually do in managing organisational activities (Aidemark, 2001b), allowing professional autonomy within the medical domain under the stewardship of medical

departmental managers. In these situations, the HMAS changes ultimately became symbolic at the department level.

Furthermore, due to embedded diagnostic or political roles of HMAS, dysfunctional behaviours through manipulation are also observed, which undermine the effectiveness of HMAS. For example, Lægreid and Neby (2016) report that medical departmental managers manipulate coding and reporting practices to increase the financial reimbursement from the government, undermining the diagnostic roles of HMAS. Begkos et al. (2019) further elaborate on the different modes applied by medical departmental managers to either challenge existing financial arrangements, conform to established rules to secure funding, or circumvent constraints to achieve their strategic objectives.

Overall, medical departmental managers play a crucial role in facilitating HMAS implementation and supporting the balance between professional autonomy and managerial control. Their mediation shapes the roles that HMAS play in hospitals and influences their effectiveness. To mitigate dysfunctional behaviour and the decoupling use of HMAS, there are calls for more efforts in research and policy changes to promote more active engagement of medical departmental managers in the design and implementation of HMAS (Oppi et al., 2019).

4.1.4 Medical professionals

As pivotal participants in the daily operations in hospitals, traditionally medical professionals enjoy a relatively high level of autonomy in their clinical practices (Abernethy & Stoelwinder, 1995). However, the NPM reform in healthcare has raised expectations for a more transparent and robust control system to oversee hospital operations. This shift has led to a transition in the responsibilities of medical professionals, who are now expected to integrate their autonomous decision making within broader control systems that accommodate the needs of various actors, including managers and external regulators (Østergren, 2009).

A significant body of research highlights a profound tension between management control and professionals' priorities in professional autonomy, patient care quality, and personal compensation. These conflicts often result in resistance to HMAS changes or the decoupling of clinical practices from them, causing the HMAS to serve primarily symbolic roles (Cardinaels & Soderstrom, 2013; Gebreiter, 2017; Jackson et al., 2014; Jones, 1999; Macinati, 2010). For instance, Cardinaels and Soderstrom (2013) note that professionals may perceive that HMAS—such as ABC—are infringing on their autonomy, which can diminish their willingness to embrace HMAS reforms. They may exhibit distorted behaviour to protect their professional autonomy, priorities, and compensation (e.g., Kerpershoek, Groenleer, & de Bruijn, 2016; Lopez-Valeiras, Gomez-Conde, Naranjo-Gil, & Malagueño, 2022; Rautiainen et al., 2022), which leads to ineffective management accounting changes. For example, Kerpershoek et al. (2016) reported unintended consequences in response to the implementation of the DRG system, with professionals registering more or different DRGs for underpayment. Lopez-Valeiras et al. (2022) find that employees who perceive MCS as threatening are more likely to engage in deliberate ignorance, intentionally avoiding knowledge or information that could improve both their performance and the organisation's outcomes. This resistance undermines the functional roles of HMAS and hampers their ability to shape organisational culture.

To mitigate resistance, prior studies emphasise the importance of trust between management and medical professionals. Medical professionals are more likely to embrace HMAS changes when trust between them and management is established. This trust is built when HMAS reflect their core priorities, such as patient care and professional autonomy (see Table 5 for relevant references). Studies demonstrate that, when HMAS are designed with these priorities in mind, this leads to greater participation and trust from professionals (Jackson et al., 2014; Jones, 1999). Medical professionals typically prioritise patient care over financial targets, and when HMAS align with this focus, they are more likely to engage with the system (Macinati, 2010). In such cases, HMAS serve as valuable tools for integrating clinical and financial goals,

with professionals perceiving them as enhancing, rather than undermining, their patient-centred approach (Gebreiter, 2017). When HMAS support clinical autonomy and provide flexibility in decision-making, they also foster alignment between professional values and managerial objectives, thereby building mutual trust (Lægreid & Neby, 2016; Lehtonen, 2007). Dyball, Cummings, and Yu (2011) and Robbins (2007) suggest that allowing professionals the freedom to apply HMAS in ways that support their clinical judgement reduces mistrust and deepens their understanding of the system. This, in turn, encourages the integration of HMAS into their daily practices, as the system aligns with their core responsibilities without imposing restrictive controls.

Overall, medical professionals' attitudes toward HMAS influence the effectiveness of HMAS' functional roles. Although resistance to HMAS changes is common, implementing trust-building measures and aligning the system with patient-centred goals can promote greater collaboration between professionals and management, leading to more effective use of HMAS in hospitals.

4.1.5 Patients

Patients' voice is increasingly emphasised in public healthcare, contributing to both functional and symbolic application of patient-centred quality indicators. Historically, management accounting reforms, driven by efficiency and cost control, marginalised patient input in hospital management and created a mismatch between the actual service performance and the internally measured results (Goddard, 1992). It is through HMAS reforms that hospitals have gradually come to recognise patients as key actors, transitioning them from passive recipients of care to empowered customers. This shift is reflected in the integration of quality indicators and patient feedback mechanisms into HMAS to better align hospital services with patient needs, such as the use of BSC (Aidemark & Funck, 2009; Kerr & Hayward, 2013). Studies show how patients' ratings can improve the monitoring of medical services quality, achieving a diagnostic function (Eyring, 2020; Kerr & Hayward, 2013; Pflueger, 2016), and how patients' feedback is used to integrate patients' perspectives into internal decision making (Reilley et al., 2020). Patients can also be empowered through other means, such as allowing patients

to choose hospitals. Østergren's study (2006) of Norwegian national healthcare quality indicators shows the role of patients as the users of HMAS information.

Despite these advancements, some scholars question the genuine impact of these initiatives. Due to the legitimacy-seeking motivation and the lack of engagement of patients in the design and implementation of the initiatives, a decoupling or mismatch occurs between patients' actual concerns and management accounting practices, rendering relevant HMAS reforms largely symbolic (Malmrose & Kure, 2021; Østergren, 2006; Pflueger, 2016; Reilley et al., 2020). Even though more recent reforms aim to involve patients in participatory systems, moving away from the unilateral productivity focus of NPM, these efforts are often not fully institutionalised due to the enduring influence of productivity-focused logics (e.g., Malmrose & Kure, 2021). In general, patients' power in shaping HMAS changes largely depends on government intervention, and this form of being 'voiced' is easily prone to distortion (Chang, 2009, 2015). Moreover, paradoxically, attempts to empower patients in hospital performance measurement can restrict their real voices as well (Reilley et al., 2020). Feedback surveys, for instance, often limit patient input to predetermined formats set by the hospitals, thereby impeding the authentic expressions of patient experience (Pflueger, 2016).

Hence, although prior studies see some efforts in integrating patients' voices in hospital internal control and management, the effectiveness of these initiatives is questioned. This review underscores the need for HMAS to more genuinely integrate patients into their design and implementation to ensure that reforms promote not just efficiency but also enhanced patient experiences and care.

4.2 The impact of HMAS roles on actors: outcomes

While we have reviewed the roles of HMAS and the vital impact of various actors in shaping such roles, it is equally important to consider the reciprocal effects of HMAS'

diverse roles on these actors, which reflecting the effectiveness of HMAS reforms (see Table 6).

Insert Table 6 about HERE

4.2.1 (In)effectiveness of HMAS in governmental control and hospital management

As elaborated in Section 3, the diagnostic, interactive and culture shaping roles of HMAS could enhance governmental control by improving the transparency and accountability of public hospitals. Simultaneously, HMAS may support senior managers by enhancing internal control, improving decision-making processes, and increasing organisational responsiveness to external turbulence. However, our review synthesises that the politicisation and symbolisation of HMAS reforms have frequently undermined their intended goals of enhancing control and decision making (see Table 6 for relevant references).

In the cases of reforms having deviated from their intended goals, governments—the primary drivers of HMAS reforms—have seen their control over public hospitals weakened (see Table 6 for relevant references). For instance, contract-based budgeting, while intended for managed care, often shifts to accommodate specialty healthcare costs and legislative demands, fostering "budget games" and stakeholder distrust (Hyvönen & Järvinen, 2006). These distorted internal behaviours often result in government financial misallocation, misplaced service priorities in hospitals, and erosion of trust between the government, hospitals, and the public (Conrad & Guven-Uslu, 2012; Lægreid & Neby, 2016; Pettersen, 2001). This shows that the unilateral enforcement of HMAS changes often transforms reforms into political and symbolic tools, failing to deliver effective control and improved transparency and healthcare quality, further undermining the functional roles of HMAS.

For hospital senior managers, HMAS reforms with symbolic natures have similarly resulted in reduced effectiveness in control and decision making, especially when imposed by external institutional pressures (see Table 6 for relevant references). While modern accounting practices such as ABC are adopted under institutional pressure, they

are often not used meaningfully in managerial decisions, as observed by Järvinen (2006) and Malmrose and Kure (2021). Even after extensive reform efforts, the intended changes may remain fragmented and underutilised, failing to fully integrate into hospital management and operations after years of implementation (Arnaboldi & Lapsley, 2004). These studies highlight the challenges faced by senior managers in balancing external demands with internal operations. Ineffective management of these competing demands can lead to poor decision making and suboptimal hospital management. Such inefficiency indicates a weakening of diagnostic and interactive roles.

4.2.2 Fostering the development of hybridised professionals

HMAS' culture shaping roles have had an impact on professionals in general, developing their managerial awareness and shaping a management-oriented culture within professional groups as summarised in Table 6. The implementation of HMAS has put departmental medical managers under pressure from budgeting constraints and cost control, facilitating their transition from pure professional leaders to hybrid medical managers. Their engagement with HMAS has resulted in their increased managerial knowledge, awareness, and responsibilities. Studies show that hybrid departmental managers present a more favourable adoption of managerial roles in overseeing professional groups or relevant departments (Wickramasinghe, 2015), a proactive use of accounting information for decision making and departmental control (Abernethy & Vagnoni, 2004), an enhanced understanding of department management and cost-consciousness leading to improved departmental performance (Abernethy & Vagnoni, 2004; Buathong & Bangchokdee, 2017; Wickramasinghe, 2015), and a more strategic approach to aligning clinical and financial priorities (Begkos & Antonopoulou, 2022).

More specifically, the diagnostic roles of HMAS significantly influence the hybridisation of medical departmental managers as they require them to take responsibility for financial outcomes and obligates them to absorb accounting knowledge (Østergren, 2009). However, interactive use of HMAS is also recognised as

crucial in fostering the hybridisation of medical departmental managers as demonstrated by prior studies through case comparison (e.g., Järvinen, 2006; Østergren, 2009) and cross-country analyses (e.g., Ballantine, Brignall, & Modell, 1998; Kurunmäki et al., 2003). For example, in a cross-country comparison by Kurunmäki et al. (2003), the researchers show how Finnish senior professionals increasingly incorporated management accounting responsibilities through involvement in financial planning and budget management and integrated cost consciousness into their clinical activities, reflecting the impact of HMAS' interactive roles on medical departmental managers' behaviour and mindset. In contrast, senior professionals in the UK maintained a complete separation between clinical decision making and financial matters with a greater focus on diagnostic roles, leading to the symbolic meaning of HMAS to professional managers. These studies collectively emphasise that interactive use of HMAS, where professionals positively engage in the dialogues and negotiations with management through accounting practices, plays a pivotal role in shaping medical managers' hybridisation.

4.2.3 Dynamic power relationships among actors

The multifaceted roles of HMAS changes can fundamentally alter power relationships among actors in hospitals, both intentionally and unintentionally, reflecting the effectiveness of HMAS's political and interactive functions.

There have been debates over HMAS's persistent focus on managerial and financial targets through diagnostic control, as it may lead to increased centralization of power among management (see Table 6 for relevant references). The concerns are raised that the increased concentration of power relationship may lead to dissatisfaction of professionals due to their disengagement from the governance process, ultimately rendering the HMAS ineffective and symbolic (Conrad & Guven-Uslu, 2011, 2012). However, Gebreiter (2022) presents a nuanced perspective, arguing that, while these reforms may reduce the autonomy and authority of medical practitioners, they simultaneously enhance the prominence of clinical expertise. By introducing quantifiable measures for clinical practices, HMAS expand the scope and influence of

medical knowledge in both hospital management and healthcare policy formulation. This integration suggests the emergence of hybrid accounting instruments that combine financial metrics with clinical insights resulting from the interplay between accounting principles and medical practice.

Our review also highlights that the interactive use of HMAS could facilitate a more decentralised power relationship in public hospitals, promoting empowerment across healthcare professionals and patients in hospital management (see Table 6 for relevant references). For example, Pflueger (2016) suggests the role of patient surveys in empowering patients to evaluate care quality, thus shifting traditional power relationships between patients and medical professionals. Through these surveys, patients gain a form of authority in their interactions with healthcare providers and are involved in hospital management, albeit indirectly. Wickramasinghe (2015) highlights how the introduction of cost accounting practices empowered individual hospital staff, including medical professionals, to participate actively in financial decision making.

Either functioning as diagnostic or interactive tools, HMAS reforms can act as catalysts, exposing pre-existing organisational tensions between management and professionals, and potentially generating new conflicts regarding actor relationships (see Table 6 for relevant references). For example, Robbins et al. (2022) illustrate how the application of accreditation revealed underlying tensions that might not have been visible otherwise. Aidemark (2001a) observe that healthcare professionals used the BSC as a tool for dialogues, promoting bottom-up communication and emphasising non-financial perspectives such as patient care and employee development. However, this clashed with the managerial use of the BSC as a bureaucratic financial control instrument in his case, creating tension between the objectives of quality improvement and cost containment.

Furthermore, it is argued that the tensions and their visibility could potentially lead to performance improvements if managers are able to balance external demands with internal capabilities and resources (Robbins et al., 2022). Also, an effective interactive

approach to HMAS may enable actors to negotiate compromises over these tensions during the system's design, implementation, and interpretation, thereby enhancing the effectiveness of HMAS changes in shaping their daily activities (Campanale & Cinquini, 2016; Kelly et al., 2015). For instance, Kelly et al. (2015) observe that new HMAS encouraged greater collaboration between hospital managers and clinicians as part of broader performance management initiatives. These reforms broke down traditional silos, allowing all actors to participate in better decision making.

4.3 Summary

This section first synthesises the significant influences of key actors highlighted in prior relevant studies, emphasising the risk of HMAS becoming merely symbolic and political due to the dominant influence of governments relative to other actors, as well as the limited engagement of medical professionals in the design and implementation of HMAS. Meaningful participation by medical departmental managers and professionals enables HMAS reforms to align with medical professionals' priorities and facilitate the integration of new management accounting practices into their daily routines. Moreover, our analysis advocates for the greater involvement of weaker voices in HMAS design to better capture the quality of healthcare services from the perspective of users, particularly patients. However, the question remains unanswered as how patient involvement in hospital management control—through mechanisms such as quality surveys or patient feedback—genuinely reflects their voices.

Following decades of public healthcare governance and management reforms, management accountants and nurse managers have gained increasing influence over hospital management through HMAS. However, research on their impact on the effectiveness of HMAS remains limited. Early studies (e.g., Covaleski & Dirsmith, 1983; Purdy, 1993a, 1993b) highlight the influence of head nurses, yet contemporary research on their use of accounting data and their roles in management control practices remains scarce. Similarly, existing studies on management accountants primarily examine how they adapt to HMAS changes, noting that regulatory constraints often

limit their proactive involvement (e.g., Järvinen, 2009; Oppi et al., 2019; ten Rouwelaar Schaepkens, & Widener, 2021). Research on how management accountants shape HMAS changes remain limited.

Furthermore, while our review highlights the positive impact of HMAS reforms on developing hybridised professionals and promoting managerial awareness among professionals, it reveals their ineffectiveness in strengthening governmental control and hospital management due to professionals' resistance to diagnostic control. Moreover, prior studies reveal that HMAS reshape the power relationship between management and professionals, potentially in two opposing directions. While a focus on diagnostic control increases concentration of power among management, the interactive use of HMAS can foster greater involvement of medical professionals and patients in hospital management. This demonstrates that the impact of HMAS on tensions and collaborations among actors may be either positive or negative, depending not on the mere implementation of HMAS, but on how they are designed and implemented.

5. Conclusion

Contributing to the literature, this review provides a comprehensive synthesis of how interactions between diverse actors and HMAS changes shape the evolving roles of HMAS and their (in)effectiveness, through examining 196 studies published between 1980 and 2022 in accounting, public management, and public healthcare journals. This review addresses the fragmentation in prior research, which often arises from a narrow focus on specific geographical contexts, particular management accounting techniques, or the use of either qualitative or quantitative methodologies in isolation. By pursuing our research aim—developing a comprehensive understanding of the dynamic roles of HMAS, their interrelationships, and how various actors both influence and are influenced by these potentially interconnected roles—our findings make the following specific contributions to the literature and have important practical and policy implications.

First, this review contributes to the literature on the roles of MAS in general, and HMAS in particular, by providing a holistic understanding of the various roles of HMAS and shedding light on their interconnections. It synthesises findings that extend discussions beyond the traditional modes of control—diagnostic and interactive (Simons, 1995)—and emphasises the socio-ideological controls of HMAS (Abernethy et al., 2007; Martyn, Sweeney, & Curtis, 2016), such as their use in rituals for legitimacy, as well as for defending autonomy or gaining control.

While there is a general lack of research directly assessing the effectiveness of HMAS reforms in enhancing efficiency and accountability, our review highlights substantial evidence from previous studies demonstrating HMAS's effective roles in shaping organisational culture. Extending the findings of Chenhall et al. (2017) regarding the active roles of MCS in expressing values, this review shows that HMAS play important culture shaping roles, substantially influencing intra-organisational values and beliefs. This is particularly relevant in heterogeneous environments, such as public hospitals, where multiple values coexist. It supports the notion that HMAS changes have the potential to enhance accountability and increase managerial awareness among both management and medical professionals. While HMAS changes have been criticised for unintentionally intensifying value conflicts, our review underscores their significant long-term impact on shaping organisational culture and reconciling values within broader public management transformations.

More importantly, existing research highlights that achieving these cultural shifts is challenging, requiring not only a deep understanding of prevailing cultural dynamics but also an awareness of the cognitive responses and divergent values held by the actors involved. Additionally, in public contexts, HMAS reforms are often initiated, directly or indirectly, for political purposes. As a result, they influence power relationships and serve to maintain external legitimacy or preserve the internal status quo, rather than solely supporting internal management and control functions.

Furthermore, extending discussions on the interrelationships between different roles (Baxter & Chua, 2003; Chenhall, 2003, 2017), this review also contributes to the

literature by highlighting the dynamics among the five roles of HMAS, addressing Abernethy et al.'s (2007) call for deeper exploration of HMAS through a combined lens of organizational and sociological perspectives. These roles are often interconnected in shaping hospital management accounting practices, rather than being mutually exclusive. For example, our findings suggest that diagnostic control, culture shaping, and an effective interactive approach can be mutually reinforcing. Moreover, the intended instrumental objectives of HMAS reforms, such as for diagnostic control, interactive communication, or cultural cultivation, may be reshaped during system design and implementation, which leads to political and symbolic use of HMAS.

It is worth noting that, while symbolic and political roles are often seen as barriers to effective reform, they can also play a constructive role by engaging marginalised actors, such as patients, and fostering dialogues between conflicting actors. The challenge lies in ensuring that these roles do not become ends in themselves but rather, serve as mechanisms for meaningful change. For scholars, the interdependence of these roles challenges the reductionist perspective that frames these roles as distinct or opposing, underscoring the necessity of a holistic perspective in designing and implementing HMAS.

Second, this review contributes to the understanding of MAS by demonstrating how the interaction between diverse actors and HMAS changes shapes the roles of HMAS and the behaviour of the actors, thereby addressing the gaps identified by previous studies (e.g. Tessier & Otley, 2012; Otley, 2016). While the diagnostic roles of HMAS are often shaped by the interaction between government reforms, hospital management strategies, and healthcare professionals' input, our literature analysis highlights that the disproportionate influences during HMAS design and implementation frequently result in the system serving symbolic purposes rather than improving management practices. Top-down pressure can reduce HMAS to mere compliance tools, while limited involvement of medical managers hinders their integration into daily operations. Additionally, medical department managers are often

transferred to hybrid professionals during the management accounting reforms, mediating between professionals and senior management.

Previous studies have emphasised the importance of building trust through participation in HMAS design, as it helps professionals align HMAS with their priorities and incorporate HMAS into their daily practice. Poor engagement heightens tensions between management control and professional priorities, leading to passive compliance and symbolic use. Moreover, our analysis calls for greater involvement of weaker voices, such as professionals and patients, and highlights the need for collaboration among actors. In particular, giving patients a stronger voice in HMAS design could improve the alignment between hospital performance and quality of care, as suggested by Abernethy et al. (2007). However, research also warns that patient involvement risks becoming merely symbolic, as their voices remain weak and often distorted due to limited participation in HMAS design and communication. Accordingly, our study emphasises that collaborations among actors may be either positive or negative, depending not on the implementation of HMAS per se, but on how they are designed and implemented.

Thus, by elaborating on these interactions, this review provides a thorough discussion of how different uses of MAS affect employees and overall performance in various ways (van der Kolk, van Veen-Dirks, & ter Bogt, 2019). The evolution of HMAS roles is shown to be deeply intertwined with actor interrelationships and the shifting priorities of those involved. Moreover, these roles are not static but evolve dynamically in response to the interplay among external demands, internal managerial objectives, and professional cultures. This underscores the necessity of adopting a holistic perspective on HMAS, from its design and implementation to its ultimate effectiveness.

Third, this review makes important contributions to MAS research by identifying research gaps for future study. Existing studies, facing challenges in performance measurement and data availability, tend to focus more on assessing the (un)successful implementation of HMAS changes, primarily through qualitative approaches—rather

than examining quantified outcomes. Greater efforts to investigate the effectiveness of HMAS changes in enhancing efficiency, care quality, and accountability could deepen our understanding of the roles of HMAS and lead to better research-informed recommendations for policy and practice.

In addition, this review calls for increased research attention to the diverse actors involved in HMAS changes, particularly those who have received less focus, such as patients, nurses, and management accountants. Also, as HMAS roles are shown to be deeply intertwined with actors' power relationships and their shifting priorities, they are not static but evolve dynamically in response to the interplay between external demands, internal managerial objectives, and professional cultures. It underscores the necessity of adopting a longitudinal perspective to study HMAS's roles and their effectiveness. More in-depth empirical studies examining such topics across different contexts would also be valuable. In this regard, the analytical framework we employed in this paper for examining the (in)effectiveness of HMAS and the underlying reasons through actors, roles, and interactions could also provide a foundation for future empirical studies.

Furthermore, while multiple HMAS are likely implemented in hospitals following continuous reforms in the public healthcare sector, they may function independently or collectively in certain roles (Bedford, 2020; Chenhall, 2003; Grabner & Moers, 2013). Research on the roles played by a combination of HMAS remains scarce, echoing the calls made by Bedford (2020) and Grabner and Moers (2013), warranting future research attention.

Our descriptive analysis also revealed several gaps that persist in the literature, including a limited spread of HMAS research in non-accounting journals, a marked lack of studies focused on developing countries, and a scarcity of comprehensive, comparative, and mixed-method approaches. These limitations echo earlier findings (e.g. Abernethy et al., 2007; Eldenburg & Krishnan, 2007; Scapens & Bromwich, 2010; van Helden, 2005) and highlight key opportunities for further research.

Finally, from a practical and policy point of view, this review highlights the risks of disproportionate influence among governments, management, and other actors in HMAS design and implementation, calling for the greater involvement of professionals and patients in the design and implementation of policy changes/reforms. The success of HMAS reforms/changes depends on positive collaboration through an interactive approach to design and implementation, aligning with the notion of Trust-based Management (Lapsley, 2022; Funck, 2024). Practically, governments and senior hospital managers are encouraged to exercise authority while allowing flexibility, engaging medical professionals in ways that respect their autonomy while also ensuring accountability. Additionally, while patient involvement is crucial for HMAS reforms to lead to improvements in care quality, more importantly, it is about how to integrate patients' views in HMAS. In general, we call for an interactive approach that actively involves both patients and professionals in the design and implementation of HMAS changes/reforms.

While the review makes significant contributions, it is limited to the findings published in highly regarded English journals. Future reviews may contribute to a more comprehensive view by including a broader range of journals and publications. In addition, as our primary focus was on demonstrating the interplay between involved actors and HMAS reforms at the public hospital level, a more comprehensive review of the status and outcomes of HMAS reforms at the field level could prove fruitful.

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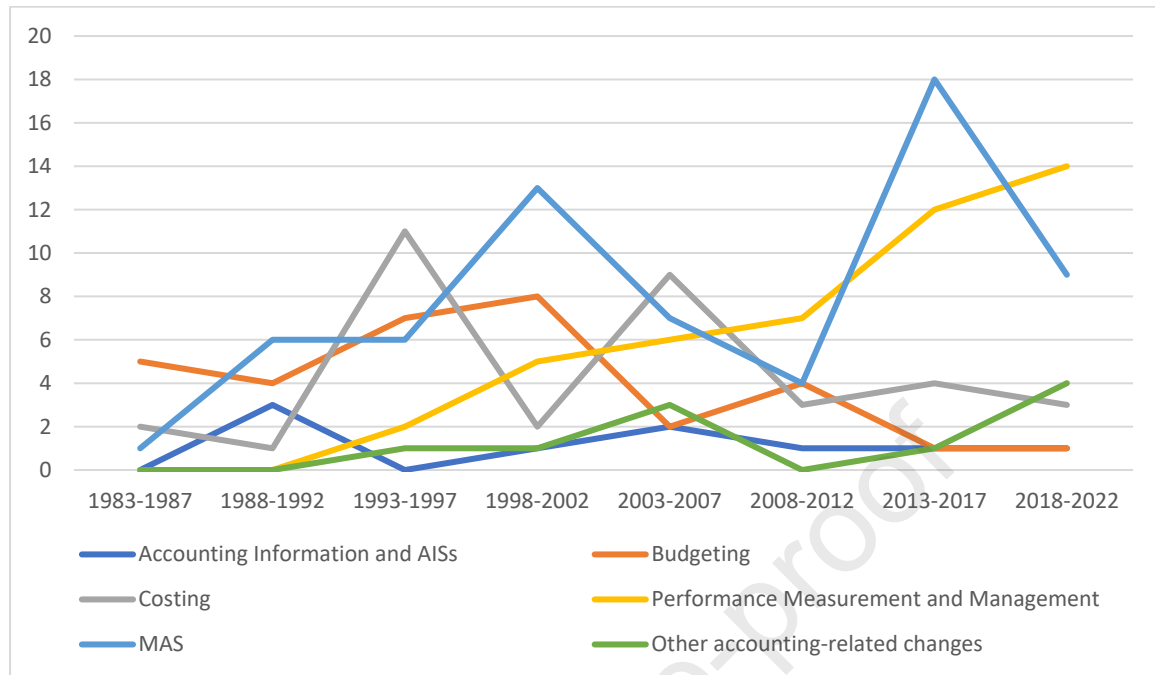
Figure 1 Distribution of the focus of HMAS changes over time

Table 1 Distribution of selected papers across journal field

Journal Field	Journal Title	Number of Papers
Accounting		189
	<i>Financial Accountability and Management</i>	63
	<i>Management Accounting Research</i>	22
	<i>Accounting, Organizations and Society</i>	21
	<i>Accounting, Auditing and Accountability Journal</i>	20
	<i>European Accounting Review</i>	10
	<i>Journal of Accounting and Public Policy</i>	7
	<i>Accounting Forum</i>	6
	<i>Critical Perspectives on Accounting</i>	6
	<i>Contemporary Accounting Research</i>	5
	<i>The Accounting Review</i>	5
	<i>British Accounting Review</i>	5
	<i>ABACUS</i>	3
	<i>Accounting Horizons</i>	3
	<i>Journal of Accounting Research</i>	2
	<i>Behavioral Research in Accounting</i>	2
	<i>Qualitative Research in Accounting & Management</i>	2
	<i>Australian Accounting Review</i>	1
	<i>Asian Review of Accounting</i>	1
	<i>Journal of Accounting and Economics</i>	1
	<i>Accounting and Business Research</i>	1
	<i>China Economic Review</i>	1
	<i>Accounting and Finance</i>	1
	<i>Journal of Management Accounting Research</i>	1
Healthcare		4
	<i>JAMA</i>	2
	<i>Lancet</i>	1
	<i>Annual Review of Public Health</i>	1
Public Management		3
	<i>Public Management Review</i>	2
	<i>Public Administration Review</i>	1
Total		196

Table 2 Regional analysis of the reviewed publications

Region of Investigation ¹	Number of Papers				Total (%)
	1980–1992	1993–2002	2003–2012	2013–2022	
United Kingdom	7	14	15	10	46 (25%)
North American Countries	8	13	8	8	37 (20%)
Nordic Countries	2	10	13	10	35 (19%)
Other European Countries	0	2	5	25	32 (17%)
Australasian Countries	4	15	3	3	25 (13%)
Asian Countries	0	0	2	6	8 (4%)
African Countries	0	0	0	1	1 (1%)
Total	21 (11%)	54 (30%)	46 (25%)	63 (34%)	184²

Notes:

¹ Nordic countries in this analysis include Sweden, Finland, Denmark, and Iceland. The other European countries include the Netherlands, Belgium, France, Germany, Italy, Greece, Spain, and Portugal. North American countries include the United States of America and Canada. Australasian countries include Australia and New Zealand. African countries include Ethiopia and Ghana. Asian countries include Japan, Sri Lanka, China, Thailand, India, and Iran.

² The difference between the total number of papers in this table (184) and in our sample (196) is due to the following: 1) papers without a regional focus and those overlapping regions were excluded, for example, Ballantine, Forker, & Greenwood (1998) compare the United Kingdom and Sweden and 2) some papers do not specify a particular country as the focus of their research; for example, Chua and Preston (1994) and Malmose (2018).

Table 3 Analysis of research methods and fundamental theories

Research Methods—Data Collection	Total	Fundamental Theories	Total
Qualitative Methodology	112	Positivism	46
Qualitative Data Triangulation ¹	84	Agency Theory	9
Historical Analysis (Archival data)	17	Economic Theory	6
Interview-based	7	Contingency Theory	6
Documentation-based	4	Other positivistic theories	25
Quantitative Methodology	39	Interpretivism	87
Survey-based	26	Institutional Theory	39
Financial analysis (hospital financial data)	10	Latourian Approach	11
Economic analysis (national-level data)	3	Radical Theories	10
Mixed Methodology	22	Foucauldian approach	7
Others	23	Other interpretive theories	20
Discussion	15	Hybrid theories	7
Review	8	Not Explicit	56
Total	196	Total	196

Note:

¹ The term 'qualitative data triangulation' refers to the use of multiple sources of qualitative data (more than two sources) collected for research. This includes any two or more of the following: interviews, observations, documentation, and archival data.

Table 4 The multifaceted roles of HMAS in the context of management accounting changes

Roles	Findings	Paper (s)
Diagnostic Roles	... execute planning, reporting, and monitoring processes to align professional behaviours with the organisation's goals.	Abernethy and Stoelwinder (1990a); Chua and Preston (1994); Eldenburg (1994); Abernethy and Stoelwinder (1995); Abernethy (1996); Marcon and Panozzo (1998); Dillard and Smith (1999); Groot (1999); Lowe and Doolin (1999); Lowe (2000a); Lowe (2001a); Aidemark and Lindkvist (2004); Jacobs, Marcon, and Witt (2004); Bouillon, Ferrier, Stuebs Jr, and West (2006); Jones and Mellet (2007); Conrad and Guven-Uslu (2011).
	... enhance standardisation, visibility, and accountability of clinical activities to promote rational decision-making and effective resource allocation.	Covaleski and Dirsmit (1986); Coombs (1987); Rayburn and Rayburn (1991); King, Lapsley, Mitchell, and Moyes (1994); Jacobs (1995); Lowe (1997); Doolin (1999); Jones (1999); Llewellyn and Northcott (2005); Abernethy and Vagnoni (2004); Kastberg and Siverbo (2013); Kaplan and Witkowski (2014); Gebreiter and Ferry (2016); Levay, Jönsson, and Huzzard (2020); Llewellyn, Begkos, Ellwood, and Mellingwood (2022).
	... identify and address organisational inefficiencies and challenges to improve overall performance.	Lapsley (2001a); Kaplan and Witkowski (2014); Padovani et al. (2014); Kastberg and Siverbo (2016); Moynihan et al. (2020).
Interactive Roles	... facilitate dialogue and debate among actors with diverse values to promote compromise, while acknowledging the risk of heightened tensions.	Coombs (1987); Abernethy and Stoelwinder (1990b); Preston et al. (1992); Preston, Chua, and Neu (1997); Ballantine et al. (1998); Abernethy and Brownell (1999); Aidemark (2001a), (2001b); Järvinen (2006); Alcouffe et al. (2008); Aidemark and Funck (2009); Østergren (2009); Fallan, Pettersen, and Stemsrudhagen (2010); Kurunmäki and Miller (2011); Conrad and Guven-Uslu (2012); Kastberg and Siverbo (2013); Mutiganda (2013); de Harlez and Malagueño (2015); Wickramasinghe (2015); Järvinen (2016); Fiondella et al. (2016); Pflueger (2016); Buckmaster and Mouritsen (2017); Gebreiter (2017); Begkos et al. (2019); Reilley et al. (2020); Begkos and Antonopoulou (2022); Morinière and Georgescu (2022); Gebreiter (2022); Leotta and Ruggeri (2022); Robbins et al. (2022).
	... establish a collaborative space for internal groups to share practices, address challenges, and develop solutions, enhancing organisational learning and performance.	Lowe and Doolin (1999); Lowe (2000b); Aidemark (2001); Lowe (2001b); Kurunmäki et al. (2003); Pettersen (2004); Scarpato (2006); Østergren (2009); Eldenburg et al. (2010); Cardinaels and Soderstrom (2013); Kelly et al. (2015); Wickramasinghe (2015); Buckmaster and Morinière (2017); ten Rouwelaar et al. (2021); Cifalinò, Mascia, Morandin, and Vendramini (2023).
	... might lead to strategic ambiguity and conflict with the organisation's objectives.	Pettersen (2001); Østergren (2009).

Culture Shaping Roles	... instil new values and priorities throughout the organisation.	Broadbent (1992); Goddard (1992); Malmlose (2015); Fiondella et al. (2016).
	... shape organisational culture by enhancing accountability and managerial awareness among management and professionals.	Chua (1993); Abernethy and Chua (1996); Charpentier and Samuelson (1996); Kurunmäki (1999); Abernethy and Vagnoni (2004); Kurunmäki (2004); Lehtonen (2007); Aidemark and Funck (2009); Campanale and Cinquini (2016); Malmlose (2015); Gebreiter (2022); Rautiainen et al. (2022).
Political Roles	... provide a platform for legitimising actions and negotiating power dynamics between professionals and management.	Covaleski and Dirsmith (1983); Doolin (1999); Carr and Beck (2022).
	... serve to establish, distribute, maintain, and challenge power relationships within organisations.	Covaleski and Dirsmith (1986); Covaleski and Dirsmith (1991); Covaleski et al (1993); Chua and Preston (1994); Kurunmäki (1999); Lowe (2000a); Conrad and Guven-Uslu (2011); Jackson et al. (2014); Malmlose (2015); Gebreiter (2022).
	... support and defend the political considerations and health policies implementation.	Chang (2009); Chang (2015); Bobe et al. (2017); Cui et al. (2019).
Symbolic Roles	... satisfy external demands for legitimacy and efficiency (might prioritising external perception over internal improvement).	Preston, Cooper, and Coombs (1992); Abernethy and Chua (1996); Pettersen (1999); Modell (2001); Chang (2006); Østergren (2006); Macinati (2010); Kantola and Järvinen (2012); Pettersen and Solstad (2014); Kelly et al. (2015); Järvinen (2016); Kraus et al. (2016); Reilley et al. (2020); Oppi and Vagnoni (2020).
	... are ceremonially adopted but disconnected from daily clinical activities and decision making.	Covaleski and Dirsmith (1983); King et al (1994); Pettersen (1995); Jones and Dewing (1997); Lapsley (2001b); Arnaboldi and Lapsley (2004); Nyland and Pettersen (2004); Järvinen (2006); Grafton et al (2011); Guven-Uslu and Conrad (2011); Mutiganda (2013); Guven-Uslu and Seal (2019); Malmlose and Kure (2021).
	... are symbolically used for preserving organisational interpretive schemes and maintaining the status quo.	Bourn and Ezzamel (1986a); Covaleski and Dirsmith (1986); Lapsley (1994); Kurunmäki et al. (2003); Hyvonen and Järvinen (2006); Agrizzi et al. (2016).

Table 5 The roles of actors in shaping the multifaceted roles of HMAS in the context of management accounting changes

Actors	Findings	Roles of HMAS	Paper (s)
Governments	... define and catalyse HMAS changes focusing on accountability and efficiency with embedded diagnostic roles.	Diagnostic Roles	Bates and Brignall (1993); Abernethy and Chua (1996); Ballantine et al. (1998); Marcon and Panozzo (1998); Chang (2006); Järvinen (2006); Aidemark and Funck (2009); Chang (2009); Chang (2015); Gebreiter (2017).
	... drive the HMAS to be symbolic for external legitimacy rather than internal efficiency.	Symbolic Roles	Chang (2006); Østergren (2006); Conrad and Guven-Uslu, (2012); Pettersen and Solstad (2014); Oppi and Vagnoni (2020).
	... drive the HMAS to function as a political tool to defend political interests and agendas.	Political Roles	Chang (2009), Chang (2015), Bobe et al. (2017), and Cui et al. (2019).
Hospital Senior Managers	... mediate between internal norms and external institutional pressures for designing and implementing the HMAS changes effectively.	Diagnostic & Interactive Roles	Covaleski and Dirsmith (1983); Kurunmäki (1999); Modell (2001); Conrad and Guven-Uslu (2011); Kurunmäki and Miller (2011); Conrad and Guven-Uslu (2012); Kantola and Järvinen (2012); Fiondella et al. (2016); Järvinen (2016); Kraus et al. (2016); Lachmann, Trapp, and Wenger (2016); Leotta and Ruggeri (2017); Lægreid and Neby (2016); Begkos et al. (2019); Leotta and Ruggeri (2022); Robbins et al. (2022).
	... could selectively adopt the HMAS when useful for internal management or aligned with local priorities, otherwise, decoupling.	Symbolic & Interactive Roles	Chang (2006); Kastberg and Siverbo (2013); Robbins et al. (2022).
	... could interpret the HMAS changes differently, or make distorted and dysfunctional decision making, and render the changes symbolic and inefficient.	Symbolic Roles	Abernethy and Chua (1996); Eldenburg and Kallapur (2000); Pettersen (2001); Chang (2006); Chang (2009); Chang (2015); Moynihan et al. (2020); Robbins et al. (2022).
Medical Departmental Managers	... act as mediators between top management and frontline clinicians to support the interactive application of HMAS changes.	Interactive Roles	Aidemark (2001b); Nyland and Pettersen (2004); Järvinen (2006); Fallan et al. (2010); Padovani et al. (2014); Pettersen and Solstad (2014); Major et al. (2018); Moynihan et al. (2020); Begkos and Antonopoulou (2022); Leotta and Ruggeri (2022); Macinati et al. (2022).
	... might resist with decoupling or manipulate accounting data or make political use of it to defend resources.	Symbolic & Political Roles	Covaleski and Dirsmith (1983); Jacobs (1995); Jones and Dewing (1997); Aidemark (2001b); Padovani et al. (2014); Campanale and Cinquini (2016); Lægreid and Neby (2016); Begkos et al. (2019); Malmrose and Kure (2021).

Medical Professionals	... maintain their priorities in professional autonomy, patient care quality, and personal compensation, thus decoupling their daily clinical practices from HMAS changes.	Symbolic Roles	Bourn and Ezzamel (1986a); Bourn and Ezzamel (1986b); Preston et al. (1992); Bates and Brignall (1993); Abernethy and Stoelwinder (1995); Jacobs (1995); Jones and Dewing (1997); Jones (1999); Lowe and Doolin (1999); Lapsley (2001b); Jones (2002); Arnaboldi and Lapsley (2004); Jacobs (2005); Ernst and Szczesny (2008); Macinati (2010); Conrad and Guven-Uslu (2012); Cardinaels and Soderstrom (2013); Jackson et al. (2014); Kastberg and Siverbo (2016); Carr and Beck (2020).
	... may exhibit distorted behaviours or experience negative emotions in response to HMAS changes and impede the implementation.	Ineffective Diagnostic Roles & Interactive Roles	Charpentier and Samuelson (1996); Chang (2015); Kerpershoek et al. (2016); Laegreid and Neby (2016); Llewellyn et al. (2022); Lopez-Valeiras et al. (2022); Rautiainen et al. (2022).
	... will adopt and promote HMAS changes to enhance their effectiveness if there is trust built and/or interactive engagement with these changes.	Interactive & Diagnostic Roles	Purdy (1993b); Ballantine et al. (1998); Jacobs (1998); Jones (1999); Aidemark (2001a); Aidemark (2001b); Scarparo (2006); Lehtonen (2007); Robbins (2007); Aidemark and Funck (2009); Eldenburg et al. (2010); Macinati (2010); Dyball et al. (2011); Cardinaels and Soderstrom (2013); Jackson et al. (2014); Padovani et al. (2014); Fiondella et al. (2016); Lægreid and Neby (2016); Buckmaster and Mouritsen (2017); Gebreiter, 2017; Leotta and Ruggeri (2017); Leotta and Ruggeri (2022).
Patients	... support more relevant diagnostics of medical service quality in hospitals.	Diagnostic Roles	Aidemark (2001a); Aidemark and Funck (2009); Kerr and Hayward (2013); Lin, Yu, and Zhang (2014); Pflueger (2016); Eyring (2020).
	... help interact patients' perspectives with internal decision making.	Interactive Roles	Reilley et al. (2020).
	... only seek for external legitimacy from the public rather than internal improvement.	Symbolic Roles	Østergren (2006); Pflueger (2016); Reilley et al. (2020); Malmlose and Kure (2021).

Table 6 Impact of the roles of HMAS on relevant actors in the context of management accounting changes

Outcomes of HMAS changes	Actors	Impacts on actors	Paper (s)
(In)effectiveness of government control and hospital management	Governments	The diagnostic and interactive roles of HMAS changes could enhance governmental control by improving the transparency and accountability of public hospitals.	Bourn and Ezzamel (1987); Coombs (1987); Llewellyn (1993); Marcon and Panozzo (1998); Doolin (1999); Pettersen (2004); Llewellyn and Northcott (2005); Lehtonen (2007); Grafton et al. (2011); Llewellyn et al. (2022).
		The political roles and symbolic roles of HMAS changes may have undermined government control and reform intentions in implementing the HMAS changes.	Abernethy and Brownell (1999); Lowe (2000a); Lowe (2001a); Bouillon et al. (2006); Østergren (2009); Huber, Gerhardt, and Reilley (2021).
	Hospital Senior Managers	The diagnostic and interactive roles of HMAS changes may support senior managers via enhancing internal control mechanisms, improving decision-making processes, and increasing organisational responsiveness to external turbulence.	Bourn and Ezzamel (1986a); Pettersen (1995); Pettersen (2001); Pettersen (2004); Nyland and Pettersen (2004); Hyvönen and Järvinen (2006); Østergren (2006); Chang (2009); Conrad and Guven-Uslu (2012); Laegreid and Neby (2016); Llewellyn et al. (2022).
		The political and symbolic roles of HMAS changes may diminish its effectiveness in supporting senior managers' hospital management and decision-making processes.	Covaleski and Dirsmith (1986); Arnaboldi and Lapsley (2004); Järvinen (2006); Pettersen and Solstad (2014); Malmmoose and Kure (2021).
Hybridised managers and professionals	Medical Professionals	Interactive engagement (interactive roles) with the HMAS supports the building of medical professionals' understanding of accounting and initiates a managerial culture in their daily activities (culture shaping roles).	Coombs (1987); Charpentier and Samuelson (1996); Jacobs (1998); Groot (1999); Kurunmäki (1999); Aidemark (2001a); Aidemark (2001b); Lowe (2001b); Kurunmäki et al. (2003); Kurunmäki (2004); Aidemark and Funck (2009); Eldenburg et al. (2010); Fiondella et al. (2016); Carr and Beck (2020); Gebreiter (2022); Llewellyn et al. (2022).
	Medical Departmental Managers	Interactive engagement (interactive roles) with the HMAS enables medical departmental managers to integrate accounting practices and managerial awareness into their daily decision-making and management processes (culture shaping roles).	Purdy (1993a); Purdy (1993b); Ballantine et al. (1998); Kurunmäki et al. (2003); Abernethy and Vagnoni (2004); Pettersen (2004); Järvinen (2006); Scarparo (2006); Østergren (2009); Pettersen and Solstad (2014); Wickramasinghe (2015); Buathong and Bangchokdee (2017); Begkos and Antonopoulou (2022).
Dynamic power structure and relationships among actors	Relevant Actors	A focus on managerial and financial targets via HMAS (diagnostic roles) changes could build more centralised power relations surrounding management (indirect political roles).	Covaleski et al (1993); Abernethy and Chua (1996); Kurunmäki (1999); Lowe (2000a); Conrad and Guven-Uslu (2011); Conrad and Guven-Uslu (2012); Gebreiter (2022).

Relevant Actors	The interactive use of HMAS (interactive roles) could facilitate a more decentralised power structure in public hospitals, promoting the greater involvement of healthcare professionals and patients in hospital management control (indirect political roles).	Doolin (1999); Aidemark (2001a); Wickramasinghe (2015); Pflueger (2016); Reilley et al. (2020).
Relevant Actors	The implementation of HMAS changes, functioning as diagnostic or interactive tools, may expose pre-existing organisational tensions and potentially generate new conflicts while simultaneously foster collaboration among diverse actors in management control.	Coombs (1987); Jacobs (1998); Abernethy and Brownell (1999); Lowe and Doolin (1999); Aidemark (2001a); Lowe (2000b); Østergren (2009); Conrad and Guven-Uslu (2011); Kelly et al. (2015); Campanale and Cinquini (2016); Laegreid and Neby (2016); Guven-Uslu and Seal (2019); Allain et al. (2021); Morinière and Georgescu (2022); Robbins et al. (2022).

Hospital Management Accounting Systems: Evolving Roles, Actors, and Interactions

Highlights

- Healthcare Management Accounting Systems (HMAS) plays culture-shaping roles
- Multiple roles of HMAS are interconnected, mutually reinforcing or reshaping
- Symbolic and political roles help engage marginalised actors and foster dialogue
- Interactions among actors and HMAS roles influence the (in)effectiveness of HMAS
- Involvement of doctors and patients in HMAS design supports effective change
- Our analytical framework of interaction offers a holistic view for future research

Research instrument statement

Hospital Management Accounting Systems: Evolving Roles, Actors, and Interactions

This is a review paper that used published academic research papers. Therefore, there are no any research instruments available to be uploaded.