

Discourse analysis on sustaining the maieutic role “when management accounting goes digital”

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Abstract

Purpose – This paper aims to explore how the maieutic role of management accounting (MA) can be sustained in the context of MA digitalization.

Design/methodology/approach – The paper begins with practitioners’ descriptions of the context that makes the MA support of non-routine decisions maieutic. To understand how the maieutic characteristics can be sustained in future MA digitalization, the authors then analyze the discourses these practitioners have about artificial intelligence (AI) in providing MA support.

Findings – As a basis, the authors’ data show various maieutic characteristics within the use of MA answers in decision-making as well as within the MA process of generating such answers. The paper then identifies three MA digitalization discourses, namely, “computation,” “judgment” and human-AI “interaction” discourse, each with their unique agendas on how AI should be used.

Originality/value – The paper is based on the premises that AI and digitalization are often discussed without sufficient understanding about the context being digitalized. The authors’ data suggest that MA



support in non-routine decision-making is fundamentally maieutic, and AI – as it currently stands – is not expected to change this by providing perfect answers. The authors provide novel insights about maieutic MA support and the current discourses on using AI in MA support, and how digitalization does not necessarily compromise maieutic MA support but instead has the potential to sustain or even enhance it.

Keywords Decision-making, Management accounting, Artificial intelligence, Discourse, Digitalization, Maieutic machine

Paper type Research paper

1. Introduction

The role of management accounting (MA) in supporting managerial work remains an interesting area worth further inquiry (Hall, 2010; Jönsson, 1998). However, there remains ambiguity about if and how MA supports managerial work (e.g. Hall, 2010). Although Burchell *et al.* (1980) in their seminal work already highlight how accounting is more than just providing answers, accounting remains unable to give complete information (Jordan and Messner, 2012; Wouters and Wilderom, 2008). Research on accounting has started to accept such incompleteness especially on how decision-making does not always require definite answers (Busco and Quattrone, 2018; Jordan and Messner, 2012). Instead, accounting can serve in sparking debates and thereby developing both the operations accounting is supposed to serve and the accounting itself (Englund *et al.*, 2013; Busco and Quattrone, 2018).

In this stream, Quattrone proposed that accounting can serve as a *maieutic machine* (Quattrone, 2015; Busco and Quattrone, 2018). As a maieutic machine, accounting numbers can help people deliver ideas into life by Socratic questioning of the current states of affairs and bringing new things into being (Quattrone, 2017; Busco and Quattrone, 2018), like a midwife helps mothers deliver babies (orig. Greek *maieutikos* for midwifery). Many studies have already examined, for example, how accounting visualizations such as spreadsheets or presentations serve as maieutic machines (e.g. Quattrone, 2017; Busco and Quattrone, 2018; Lassila *et al.*, 2019). However, we do not know whether the maieutic role can be maintained in the context of MA digitalization (e.g. Quattrone, 2016).

The roles of accounting, including the maieutic role, are likely to change through digitalization of accounting profession. New technologies of digitalization, like artificial intelligence (AI), have the potential of substituting human accounting work, and thus digitalization is a major change driver in the working life across the society, permeating nearly all activities of the working life (e.g. Autor *et al.*, 2003; Brynjolfsson and Mitchell, 2017; Malmi, 2016; Nielsen, 2018; Mitchell and Brynjolfsson, 2017). In our paper, we refer to MA digitalization as the use of tools such as AI to automate the MA process fully or at least partially. Such MA process includes tasks such as making assumptions, gathering data, analyzing it and providing answers to support non-routine decision-making. While many see algorithms to fundamentally change how we work – and often for the better – not everyone sees this change to bring only improvements (Sotamaa *et al.*, 2023). The management accountant's profession is not an exception (e.g. Rikhardsson and Yigitbasioglu, 2018; Moll and Yigitbasioglu, 2019), and people interested in accounting have both optimistic and pessimistic discourses on what digitalization has in place for accounting (e.g. Quattrone, 2016; Korhonen *et al.*, 2021b). Some academics, for instance, hope that digitalization brings efficiency to the accounting profession (Bhimani and Willcocks, 2014; Sutton *et al.*, 2016; Bergmann *et al.*, 2020; Knauer *et al.*, 2020) or that cooperation among employees can be made easier (Möller *et al.*, 2020). Other academics, for example, raise concerns that digitalization might not make us able to make better decisions (Quattrone, 2016) or are afraid that we will just end up making worse decisions faster (Gärtner and Hiebl, 2018; Moll and Yigitbasioglu, 2019; Quattrone, 2016).

This paper views the digitalization of the accounting tasks as a discursive practice. These people's expectations and values (e.g. Nørreklit, 2017) and the discourses they have

(e.g. [Frezatti et al., 2014](#); [Moscovici, 1984](#)) shape how MA is used and developed (cf., how “data talk” is used to suggest or challenge ideas, in [Sotamaa et al., 2023](#)), which is why we need to better understand the expectations people have for AI. How individuals frame digitalization and how they communicate their framing to each other have influence on how digitalization is implemented in different contexts into desirably functioning practices ([Nørreklit et al., 2010](#); [Nørreklit et al., 2016](#); [Nørreklit, 2017](#)). In practice, an individual has their own view or perception of the reality; such individuals in a group communicate with each other and eventually the group acts based on different viewpoints to achieve a certain task ([Nørreklit et al., 2010](#); [Nørreklit et al., 2016](#); [Nørreklit, 2017](#)). How individuals perceive the world influences group-level action that is later discursively constructed through communication. People conceptualizing an issue (such as using AI for MA support), can be the basis for its future utilization among organizational practice ([Astley and Zammuto, 1992](#); [Heritage and Clayman, 2011](#); [Lage, 2014](#); [Jokinen et al., 2016](#)). Examining the discourses managers have on AI for MA support can help us understand the principles and structures of expected use of these technologies, and ultimately the future outcomes of implementing them. While the expectations of workers concerning the implementation of algorithms in their work have been examined in different industries (such as in software development, see [Sotamaa et al., 2023](#)), such research concerning MA is still inadequate. From the viewpoint of MA, one particularly important challenge is how algorithms change the role of accounting as a language of business in organizations, and the important discussions between professionals sparked by numbers and operational knowledge ([Englund et al., 2013](#); [Quattrone, 2016](#)). How will such necessary discussions remain once digitalization proceeds?

To address this challenge, we focus on the maieutic MA support in non-routine decision-making and what the introduction of digitalization might have in place for it. We build on the premise that AI has the potential of enhancing MA support (e.g. [Bolander, 2019](#); [Möller et al., 2020](#)), but the criticism toward adopting it just for the sake of digitalization (e.g. [Rikhardsson and Yigitbasioglu, 2018](#); [Quattrone, 2016](#)) are well justified. Therefore, digitalization should ensure that the desired characteristics of MA support—such as the maieutic characteristics—are sustained. More specifically, we start by understanding the context of digitalization (i.e. MA support in non-routine decision-making) and what kind of characteristics make it specifically maieutic (e.g. [Busco and Quattrone, 2018](#)). We then investigate the various discourses of business practitioners have about using AI in MA support to reflect upon how these discourses can influence the maieutic role of MA support in MA digitalization. In this vein, the paper responds to the research question:

RQ1. How can the maieutic role of accounting support be sustained in the context of MA digitalization?

The paper takes advantage of an in-depth multiple case study about five decision cases. In the interviews, we focused on non-routine decisions with significant business impact (target market, production forecast, company acquisition, goal setting, productivity investment). The interviews covered respondents’ narratives of the non-routine decision-making processes and how MA supported these decisions. We used thematic analysis on these stories to identify the maieutic characteristics of MA support, to understand the MA context in which digitalization was discussed. Later in our interviews, the same respondents discussed the possibilities in using AI for MA support, which enabled us to analyze their expectations for AI with discourse analysis. These considerations expanded on the previously discussed decisions and brought up general expectations regarding the use of AI for MA support. Our empirics are not limited to any specific AI algorithms or techniques, but instead, they reveal different types of discourses that managers have for what AI should and could be, and how the maieutic role that is so elemental

for accounting (Quattrone, 2015; Busco and Quattrone, 2018) could be sustained even in the era of algorithms (Quattrone, 2016).

As a contribution, our findings suggest that the presence of the three MA digitalization discourses (*computation*, *judgment* and *interaction* discourse) can potentially sustain or even enhance the maieutic characteristics of MA support, if balanced in a way suitable for the context. The natural tensions among the discourses ensure that the questions made by humans (judgment), the way these questions and answers are translated between humans and AI (interaction), and the answers provided by AI (computation) are not accepted or declined blindly but scrutinized sufficiently. However, the discourse analysis suggest that such discourses partially neglect the learning that occurs in the MA process of making assumptions, gathering data, analyzing it and calculating answers. Therefore, practitioners should also ensure that important learning opportunities are not lost in the MA “result generation” process that is being automated by AI.

The paper is structured as follows. In Section 2, the paper presents prior literature and Section 3 elaborates on the methodology used in the analyses on five MA decision support contexts. Section 4 provides insights on the current maieutic MA support and the discourses managers had about the potential of AI within the maieutic MA support. Building upon these empirical insights, the paper ends in Section 5 with discussion and concluding remarks.

2. Literature review

2.1 Management accounting as maieutic machine supporting decision-making through questioning and answering

Maieutic refers to asking questions as a method to create knowledge (Busco and Quattrone, 2018). As we are unable “to fully reference to a supposedly objective financial reality” (Quattrone, 2015, p. 49), there is more to accounting than just providing answers. By providing numerical calculations, we easily limit what is considered as right and wrong, and as rational (Quattrone, 2015; Busco and Quattrone, 2018). Accounting following a maieutic machine process focuses on things that are not known and invisible through the “maieutic” process of questioning and interrogation (Busco and Quattrone, 2018). As such, maieutic machines are not able to provide complete and perfect answers (Jordan and Messner, 2012; Wouters and Wilderom, 2008), but instead, the “incompleteness [answers] provides a space for both reducing organizational complexity (to pragmatically manage it) and expands our knowledge of it through a maieutic process of interrogation” (Busco and Quattrone, 2018, p. 15). As such, maieutic machines encourage inquiry and questioning (Jones and Scapens, 2020) in the form of scrutiny and tensions, visualization, diversity of opinions and engagement for questioning and raising doubt (Quattrone *et al.*, 2016). While acknowledging the dream of perfection is practically impossible, maieutic machines depend on the hopes and beliefs (i.e. expectations) of their users to keep asking questions and maintaining “the search for perfection” (Busco and Quattrone, 2018, p. 15).

How can MA as a maieutic machine be used then? Importantly, the maieutic machine is something that requires inter-personal communication and cannot be operated only between machines. In this sense, the bottleneck of information provision might be closer to current decision-making practices than technicalities of analytics for management accountants. An automatic system could well provide information via visualizations, for instance, but it could hardly debate the issue thoroughly for judgment. Therefore, this paper suggests that to purposefully support decision-making, management accountants and decision-makers that are using analytical tools (whether digital and advanced or non-digital and non-advanced) should understand “the decision-making process,” “the nature of the task” at hand and the related “user requirements” (Rikhardsson and Yigitbasioğlu, 2018, p. 44). This

understanding not only lays the ground for MA as a maieutic machine but also guides the discourses experts have on MA digitalization.

2.2 Digitalization impacting role of accounting in supporting decision-making

Some researchers, such as [Sutton et al. \(2016\)](#), argue that with the rise of digitalization and AI, accounting academics should help the MA and control function with “new technologies that the profession is still rather ill-equipped to address and utilize” ([Sutton et al., 2016](#), p. 68). Research suggests that new skillsets are needed for management accountants to serve decision-making in the digital age (see e.g. [Schl afke et al., 2012](#); [Richins et al., 2017](#); [Nielsen, 2018](#); [Oesterreich and Teuteberg, 2019](#); [Moll and Yigitbasioglu, 2019](#)). The challenge of introducing new technologies to decision-making is not merely technical, but human-related as well (even outside the skillsets needed) due to inherent complexities of computation and values together with issues of accountability driving judgment for effective decision-making ([Schl afke et al., 2012](#); [Jakobsen, 2017](#); [Arnaboldi, 2018](#); [Carillo et al., 2019](#); [Korhonen et al., 2021b](#)). Neither empirical nor theoretical understanding on this aspect are adequate ([Gr lund, 2011](#); [Schl afke et al., 2012](#); [Rikhardsson and Yigitbasioglu, 2018](#)) and empirical evidence on the digitalization of MA and control can be difficult to even gain empirical access to ([Appelbaum et al., 2017](#)).

Plenty of expectations have been brought up for developing the provision of accounting information for decision-making ([Bhimani and Bromwich, 2009](#); [Schl afke et al., 2012](#); [Rikhardsson and Yigitbasioglu, 2018](#)), especially related to the employment of new tools and techniques made available by digitalization ([Nielsen, 2018](#)). Many scholars have recently addressed the potential of AI in supporting accounting practices by providing better insight or even replacing some accounting processes with new tools and techniques ([Sutton et al., 2016](#)). At the same time, there are researchers who remind on the responsibility of the human actors regarding those new decisions and possibilities embedded to them ([Quattrone, 2016](#); [Sutton et al., 2016](#); [G rtner and Hiebl, 2018](#); [Shrestha et al., 2019](#); [Korhonen et al., 2021a, 2021b](#)). While a number of studies present technical possibilities or potential efficiency gains stemming from digitalizing the accounting profession (e.g. [Bhimani and Willcocks, 2014](#); [Moffitt and Vasarhelyi, 2013](#); [Vasarhelyi et al., 2015](#)), these studies focus less on the peculiarities of actual accounting support in specific contexts.

If many of the current tasks of accountants could become automated, more room could be provided for accountants to focus on problem-driven analyses with both structured and unstructured data ([Richins et al., 2017](#)). However, automating these more complex tasks, such as non-routine decision support with AI could also become a tempting, yet a potentially risky idea ([Autor et al., 2003](#); [Quattrone, 2016](#); [G rtner and Hiebl, 2018](#); [Shrestha et al., 2019](#); [Korhonen et al., 2021b](#); [Bolander, 2019](#); [Leyer and Schneider, 2021](#); [Bath e, 2018](#)). Accountants could challenge the results provided by new technologies and take caution when someone uses a “black box” type of tool without proper understanding ([Moll and Yigitbasioglu, 2019](#)). Moreover, decision-makers need to also understand the limitations of the tools enabled by digitalization, ([Payne, 2014](#); [Quattrone, 2016](#); [Van der Stede, 2016](#); [Al-Htaybat and von Alberti-Alhtaybat, 2017](#); [Arnaboldi et al., 2017](#)). The decision-maker is in key role in understanding digitalization and decision-making in a social context with social, economic and environmental trends and stakeholders ([Arnaboldi, 2018](#)). It is necessary to understand that the processes and practices of decision-making can vary; otherwise, digitalization can direct practice in an undesired direction ([Korhonen et al., 2021a](#)). In one extreme, a decision-maker can be reluctant to start using new decision support technologies. In the other extreme, another decision-maker can blindly trust a new analytical tool, or even move toward computed decision-making ([Shrestha et al., 2019](#)), even if they do not understand the details of the decision context ([Quattrone, 2016](#); [Arnaboldi, 2018](#); [G rtner and Hiebl, 2018](#); [Korhonen et al., 2021b](#); [Leyer and Schneider, 2021](#)).

2.3 *Contrasting perspectives of computation and judgment*

For this paper, we make the distinction between two contrasting perspectives: *computation* (i.e. accounting provides definite answers to questions, enabling rational decision-making) and *judgment* (i.e. decisions require human judgment and humans need to take responsibility). There is a need to expand literature on the *computational* possibilities of digitalized tools of MA (e.g. Lindholm *et al.*, 2017; Stormi *et al.*, 2017) while, at the same time, considering if they can actually support decision-making and *judgment* within organizations (e.g. Hall, 2010; Quattrone, 2016). *Judgment* is often required for such decisions, which is why we need MA studies also on interpersonal contemplation of possibilities and values (Nørreklit, 2017). We also need to seek accounting roles beyond the traditional answer machine (Burchell *et al.*, 1980) as well as decision by *computation* (Thompson and Tuden, 1959). These contrasting domains of discourse (i.e. *judgment* vs *computation*) highlight certain attitudes and expectations toward MA digitalization, for example, from the point of view of either automating or augmenting decision-making (Leyer and Schneider, 2021) or finding appropriate means to develop the human-computer *interaction* (e.g. Möller *et al.*, 2020).

From the perspective of *computation*, MA can still be easily given the role of an answer machine (Burchell *et al.*, 1980), providing calculated answers for optimization or comparing the business impacts of alternatives. This is done despite the unique characteristics of each decision-making situation and the uncertainties and ambiguities related to its financial impacts (Laine *et al.*, 2016; Mouritsen and Kreiner, 2016). We even have to question if decision-making should be considered a rational process in the first place (Mouritsen and Kreiner, 2016), especially as “Accounting rarely, if ever, works as an answer machine which truly represents the financial situation of a company” (Quattrone, 2015, p. 49).

From the *judgment* perspective, MA can, for example, foster learning or provide different perspectives for more uncertain decisions involving multiple actors (Saukkonen *et al.*, 2018). Some actors’ viewpoints may overshadow the viewpoints of others, or even exclude some viewpoints from decision-making, which could hinder the validity and usefulness of accounting for analytical decision-making (Saukkonen *et al.*, 2018). Thus, organizational reality is not as straightforward as the traditional four roles of accounting by Burchell *et al.* (1980) could posit (Mouritsen and Kreiner, 2016; Quattrone, 2015). Indeed, many dimensions of organizational realities are beyond the four roles (Burchell *et al.*, 1980), for instance, those related actors and their intuition and values (e.g. Nørreklit *et al.*, 2006; Nørreklit, *et al.*, 2010; Nørreklit *et al.*, 2016). As Busco and Quattrone (2018) say, theorization on the role of accounting has evolved “from accounting as a machine that provides answers through calculative devices, to a powerful tool for questioning, which we refer to here as a maieutic machine” (Busco and Quattrone, 2018, p. 2). More studies are needed to understand this “maieutic” role of MA that seeks to spark discussions and debate (Quattrone, 2015; Busco and Quattrone, 2018) and whether these maieutic machines have a place even after MA digitalization.

2.4 *Discourses on using artificial intelligence for management accounting support*

The discussions on digitalization and AI by both academics and practitioners remain ambiguous (Möller *et al.*, 2020). These discourses can have a significant role as discourses can tell us about the expectations of individuals (i.e. what kind of hopes and/or concerns one has for using AI in MA support) that can have both descriptive and prescriptive influences (Karvonen, 2005). Managerial discourses seem to direct the narrative in organizations, especially in the case of organizational change (Doolin, 2003) such as MA digitalization. Roberge *et al.* (2020, p. 10), for example, claim that “[b]ecause there are risks in either being too involved or too distanced from the debates surrounding the deployment of AI, the

question of what the appropriate distance actually is remains” It might be difficult for accountants to find the appropriate approaches to AI implementations. There also remains a “gap between societal expectations of AI, and AI in practice,” emphasizing that human role in implementing the AI is critical in making “AI work ethically” (Kerr *et al.*, 2020, p. 10).

In our literature review, we identified an academic discourse on *computation*, i.e. digitalization using AI for accounting information provision and analysis (e.g. Bhimani and Willcocks, 2014; Constantiou and Kallinikos, 2015), with an even wider scope of literature outside MA fields. On the other side of the spectrum, we have the *judgment* discourse that highlight the importance of human judgment in decision-making (e.g. Quattrone, 2016; Mouritsen and Kreiner, 2016; Roberge *et al.*, 2020; Korhonen *et al.*, 2021b) and take a more critical stand toward AI, for not being able to take responsibility in decision-making (Leyer and Schneider, 2021). In addition to these two contrasting discourses, we also have a discourse about the human-computer *interaction* (e.g. Möller *et al.*, 2020)) about how AI can become a sort of “black box” (e.g. Moll and Yigitbasioglu, 2019; Bathaee, 2018), or how the nature of accountants’ work changes (e.g. Bhimani and Willcocks, 2014; Moffitt and Vasarhelyi, 2013; Vasarhelyi *et al.*, 2015). In *interaction* discourse, the research focuses on the practicalities of how AI is interacted with, by exploring strengths and weaknesses (Bolander, 2019) and by reflecting upon AI’s capability to either automate or augment decision-making (Leyer and Schneider, 2021).

These domains of AI are not only part of academic discourse, but also present in the public discourses (e.g. Roberge *et al.*, 2020; Kerr *et al.*, 2020). For example, Kerr *et al.* (2020, p. 10) identified “a range of actors articulating positive expectations of AI” in governmental, private and research organizations. They noticed that there had been several “negative statements and the revelations of whistle-blowers and workers on current applications of AI” (Kerr *et al.*, 2020, p. 10). Similarly, Roberge *et al.* (2020, p. 10) identified a “fundamental discrepancy between criticism of AI and its justification, namely, how the latter never ceases to benefit from the many weaknesses of the former,” suggesting again that people’s distance from AI can impact the opinions and expectations of people, and thus, the discourse they have toward digitalization of accounting and decision-making. Bearing in mind the limitations of human decision-making (Hall, 2010; Saukkonen *et al.*, 2018), and the concept of accounting logic focusing on instrumentalizing efficiency through decisions (Wallstedt, 2020), the three discourses on AI exist also within the managerial work, where AI and other tools are used for decision-making in various ways at different levels. However, there have yet not been many studies that investigate the AI discourses of business practitioners.

These three discourses are interesting from the maieutic machine point of view, as maieutic process encourages the search of perfection (*computation*), interplay between questioning and answering (*interaction*), as well as inquiry and debate (*judgment*) (Busco and Quattrone, 2018; Jones and Scapens, 2020; Quattrone *et al.*, 2016). Thus, identifying, examining and reflecting upon the maieutic MA support on non-routine decision-making in the organizations is highly relevant to understand the possibilities for digitalization and AI in MA practice. However, in the essence of the research gap underlying this paper, the managerial discourses driving MA digitalization has been largely left unexplored (Duan *et al.*, 2019). With the help of the empirical study on the roles of accounting in decision-making and AI discourses, we seek to pave the way for better understanding how people’s discourses for AI might shape MA as a maieutic machine in digitalization.

3. Methodology and data analysis

3.1 Research methodology and data gathering

To understand how people’s hopes regarding AI shape the maieutic role for MA, the paper uses in-depth empirical interview data about managers’ experiences in a

specific, recent, non-routine, high business impact decision. Non-routine decisions involve uncertainty and complexity that can result in disagreement or encourage debate (Jørgensen and Messner, 2010), making them a suitable data set for studying the maieutic role for accounting. We used semi-structured interviews (Silverman and Marvasti, 2008) where the respondents first provided a narrative of the decision case and then reflected upon the role of MA support. These were supplemented by a discussion about using AI, initiated by a question: what would you like to ask or would have liked to ask from AI? For this paper, we did not want to provide any introduction to what we and the respondent should consider as AI, but instead, we wanted for our respondents to discuss what they see as AI, how and for what purpose could it be implemented and if they saw the possibility of using AI for decision-support likely or not.

Several means for enriching the qualitative interview data were used during the process. In the beginning, the first respondents of each company chose their decision before the interviews and each respondent listed other people with a role in that decision for us to interview. We interviewed everyone whose name came up as having a significant role in the decision during the interview and who were available for an interview during the data gathering period. In all cases, we were able to acquire both the information providers' and the decision-makers' perspective, though naturally, this kind of distinction was not always clear. Two interviewers participated in each interview and each respondent was interviewed separately.

3.2 Description of the organizations and their decision cases

The empirical data of the paper (in total 14 interviews, 22 h, 190 pages of interview transcripts, of which 59 [approximately 31%] pages on AI) provides a rich account on the maieutic characteristics MA has in supporting non-routine decision-making and a better understanding about various discourses on using AI in MA support. This paper does not concern the best practices of using AI or individual AI algorithms, but the accounting support in decision-making and the discourse employees have on AI. Therefore, the interviews were pursued with companies that were not using AI at the time. However, we were aware that all five organizations and fourteen respondents had curiosity as well as some preliminary knowledge about AI before the interviews. The five cases each concerned different decision context, and the companies varied in industry and size, providing variation among our cases (Flyvbjerg, 2006). In all cases, MA had a significant role in the decision-making process and the respondents openly discussed their views and hopes for AI. Table 1 provides relevant information about the cases, respondents and the interviews.

First, "Case 1" concerns a Nordic company providing data analytics software and related services to its customers nationally. Their decision concerned the tightening of strategic market focus to a particular target market. Second, the company in "Case 2" provides market analysis devices and analytics software to its customers globally. Their decision was about making the sales and production forecasts after some organizational restructuring. Third, "Case 3" looks at an IT hardware and software provider. Their decision is about the case company acquiring an IT subsidiary of another parent company. Fourth, "Case 4" decision about setting up goals and budgets is made by an automation solution provider. Fifth, "Case 5" investigates a firm operating in the energy industry nationally. Their decision was about an atypically significant and interconnected productivity investment.

Table 1.
Summary of the case
companies,
respondents and
interviews

<i>Company</i>	<i>Industry</i>	<i>Revenue (2017)</i>	<i>Case decision</i>
Case 1	Software	0.1–1m EUR	Choosing the target market
Case 2	Software and electronics	1–10m EUR	Production forecasting
Case 3	IT hardware and software	10–100m EUR	Company acquisition
Case 4	Automation	10–100m EUR	Goal setting
Case 5	Energy	1–100bn EUR	Productivity investment

<i>Case</i>	<i>Title</i>	<i>Language</i>	<i>Interview duration</i>
Case 1	Co-founder, VP of sales and marketing	Nordic	1 h 39 min
Case 1	Chair of the Board	Nordic	1 h 8 min
Case 2	Product Development Director	Nordic	1 h 49 min
Case 2	Head of Product	English	1 h 54 min
Case 2	Procurement Manager	Nordic	1 h 51 min
Case 2	Controller	English	2 h 0 min
Case 3	CEO of the case company	Nordic	2h 16 min
Case 3	CEO of the subsidiary being acquired	Nordic	1h 31 min
Case 3	CEO of the subsidiary's parent company	Nordic	33 min
Case 4	Business Controller	Nordic	2 h 3 min
Case 4	Business Unit Manager	Nordic	48 min
Case 5	Investment Controller	Nordic	1 h 50 min
Case 5	Asset Development Team Leader	Nordic	1 h 47 min
Case 5	Development Manager	Nordic	1 h 16 min
			<i>Total 22 h 25 min</i>

Source: Authors' own work

3.3 Data analysis

For the first round of data analysis, we applied thematic analysis (Boyatzis, 1998) to elaborate on the maieutic characteristics of MA support described by Busco and Quattrone (2018). We first analyzed the transcripts to get an overall understanding of the decision-making process, followed by gathering of empirical data points on the respondents' perception on what was being decided upon, what kind of information was used to support the decision, how the participants interacted with each other and why they ended up deciding as they did. The focus of the first round of analysis was identifying the maieutic characteristics of accounting use, by looking for any kind of insights where MA support inspired iteration, debate, tensions, interrogation, questioning and answering (especially if accounting answers inspired any questions). Our focus was on the exploring what makes MA maieutic in practice, so we used our in-depth data set for identifying themes in the maieutic use of MA support (Töttö, 2012).

We performed the second round of data analysis on the AI discussion by using discourse analysis (e.g. Jorgensen and Phillips, 2002; Jokinen *et al.*, 2016). Discourse analysis generally refers to the study of language use and related activities that attribute to and conduct meanings about certain phenomena (Jorgensen and Phillips, 2002). Discourses are social structures of meaning produced in different ways in interaction, which can be spoken language, signs, symbols, but also larger unconscious entities attached to interaction (Jokinen *et al.*, 2016). Discourses can be seen and heard both in everyday social interactions and in broader complex social structures (Jorgensen and Phillips, 2002; Jokinen *et al.*, 2016). In this paper, discourses are not a matter of finding absolute truth or an exact definition of AI, but a matter of looking at the concepts, definitions, agendas and opinions that emerge in spoken or written accounts. Social representation arises from three different components, which are information, attitude and image about a new phenomenon (Moscovici, 2008).

Social representations are thus a kind of cultural-social description of some phenomenon that varies in time and space between different communities.

We started our discourse analysis by looking at the general overview respondents had about AI and reviewed their prior experience with it. We were particularly interested in identifying various discourses rather than examining if certain discourses were more common or important on a societal level (Töttö, 2012). We noticed that respondents showed varying degree of familiarization and uncertainty toward AI topic, even though we knew that all respondents had shown interest toward the topic. In our analysis, we tried to identify the underlying general expectations and mental images about AI, by looking at what kind of discourses seem to repeat among respondents. Our goal with the analysis was to identify what kind of discourses about AI can be identified and if they can share some similar characteristics enabling categorization. We used the data structure by Gioia *et al.* (2013) to identify the aggregate dimensions of both the maieutic characteristics of MA support as well as the AI discourses. Importantly, each interview showed characteristics of one or more discourses, meaning that a combination of discourses can emerge concurrently during one conversation.

4. Empirical findings

4.1 Managers' descriptions of maieutic management accounting decision support

Before going to the discourses related to the AI potential, this section gives an overview of what is the context of digitalization (i.e. the digitalization of MA support in non-routine decision-making) and what kind of characteristics such context has that makes MA support of non-routine decisions specifically maieutic. As our literature review suggested, digitalization and AI are often discussed not fully capturing such context. To capture the context of digitalization, in this section we discuss the maieutic characteristics and how they represent maieutic MA support. The following subsection then builds upon the respondents' descriptions of MA support and discusses the potential digitalization of such support and the possible benefits and limitations the respondents see in it. Together, the data set provides insights into what are the maieutic characteristics of MA that we want to sustain, and how the discourses managers have about potentially digitalizing support can sustain those characteristics.

Our analysis of the decision narratives and how MA supported these decisions in maieutic fashion adduced two clear aggregate themes for MA support: focus on MA answers and focus on MA process. The terms "answers" and "process" are used here, as we wanted to make the distinction between using MA results for decision-making (here MA answers) and the process of generating those results (here MA process). More specifically, the descriptions of respondents either described what happened to the generated MA answers as part of decision-making (answer-orientation) or what happened within the process of trying to generate the requested MA answers as well as other information controllers deemed relevant for making the decision (process-orientation). While prior literature acknowledges these two aggregate focus points of MA support, our data elaborates on what makes these focus points specifically maieutic. In this section, we highlight second order themes we identified in our analysis in *cursive*.

First, when focusing on the MA answers from the maieutic perspective, the question is what happens to the MA answers as part of the decision-making. Our respondents provided multiple descriptions of conflicts between the MA answers and the intuition and feelings of managers. On a thematic level, we identified that these descriptions show how the information provided by MA not only confirms the instinct of decision-makers, but it can also induce *questioning through conflict* with the instincts of the decision-makers. In

addition, we found that these conflicts might *inspire further discussion* whether the MA answers should be trusted or not:

The sales forecasts have an effect on how much the sales organization ends up selling. And they try their best to get the best possible revenue. [...] The challenge is that I cannot completely approve [the forecasts], so I have to give my own forecasts forward [to our suppliers]. – Procurement Manager (Case 2)

The forecast sits in the sales organization because in theory they are the closest to the customers, they can forecast the fastest and unfortunately the forecast that we received [...] we didn't believe that. – Head of Product (Case 2)

Our data also describes certain issues with MA answers, such as inability to measure intangible phenomena, limitations within MA practices, other motivations behind MA answers or uncertainties about the decisions being made. On a thematic level, these limitations might *raise doubt* and force decision-makers to *neglect the answers and trust on their gut feeling*:

My feeling is, that if it [the decision] does not feel good, then whatever the numbers look like, if it does not feel good then it will be left undone. – CEO of the Case Company (Case 3)

Indeed, our respondents provided multiple accounts where the numbers are not always fund credible either because of human involvement or regardless of it. However, their other accounts suggested that numbers can also *help scrutinize* a strategic choice that had already been made more organically:

We should have made the decision [about target market] already long time ago. [...] At some point we looked at our revenue and realized that already [Over half] of our revenue comes from the selected industry so it was quite clear that we are there already. – Co-founder, VP of sales and marketing (Case 1)

Based on our analysis, we found that the MA answers can be a driving factor steering the decision. By letting MA answers limit the opportunities available in the decision (e.g. strategy planning or budgeting), the organization could ensure that the *decision is interrogated* within the best practices or resources available. Our data showed how MA support can be used to test the feasibility of multiple alternatives to, for example, *rank alternatives* based on the selected measures. Therein, we find that MA – even if based on estimations and even guesses – becomes the maieutic driver for the discussion around what is being decided, how or which alternative is being selected:

Our goal is to increase profitability, which means we cannot base or build anything on growth. This means we cannot invest beforehand and increase our fixed costs, which means many discretionary investments will be delayed or frozen. This naturally results in discussions around the organization. And someone will always be unhappy that their favourite project gets frozen. – Business Unit Manager (Case 4)

Our data shows how even *incomplete information* can be useful if we understand the limitations of the analysis. Following the maieutic logic, we find that companies try to pursue useful, and even detailed information, but understand that they have to make decisions based on incomplete and imperfect MA answers. Our respondents even argued one should remain agile enough to *adjust one's activities* if things change or additional information comes available:

We do not use annual budgets where there is one fight per year about who gets all the toys. Instead, we have rolling planning, where every four months we re-examine our priorities and see

if the world has changed. And usually, it has. Then we change our priorities, which means that projects—that were previously frozen—might be brought back depending on what are the business priorities at that time. That way we do not set things in stone but are ready to adapt when new information arises. – Business Unit Manager (Case 4)

Based on our analysis, MA answers seem to *inspire discussion* that can aim to improve the MA process and results of interrogation, or to develop the operations being measured by MA. Thus, we find that they have much more potential than just, for example, reporting whether the targets were met. Our data provides insights to how they can *drive discussions* about why these targets were met, and if not, what were the reasons for it and what could be done to steer development work toward helping these units achieve their targets in the future:

If [the market share] is not the typical 15 or 20 percent, then that field must be reduced until it is. – Chair of the Board (Case 1)

In addition to myself, the product and business managers will naturally produce their BI [business intelligence] reports in the future. And in steering group meetings and managerial work, BI should enable us to get to the point where we do not just describe what has happened, but instead discuss exceptions and deviations, regardless of if they are positive or negative. And based on these, we can steer the business and make insights. – CEO of the subsidiary being acquired (Case 3)

[The product development manager] also has her own calculation and I have my, so at the end we also discuss about the detail and talk about that what's the difference between our calculations and maybe somehow from different opinions and we also adjust our data a little bit. Then finally we both agree, yeah, maybe this is the [forecast] we expect. – Controller (Case 2)

Second, our data also suggests us that MA does not only support decision-making by providing answers – in line with maieutic MA. Our literature review suggests that the less often discussed perspective of MA support is what happens within the MA process, i.e. the process of collecting data, analyzing it and generating the requested MA answers. Some respondents—especially from the information provision side—identified that the *process of generating MA answers* to the questions can itself *inspire important insights* about the mechanisms behind those answers. In some cases, the MA process was even *raising doubt* about whether the questions asked are even the right questions or whether the metrics used are the right metrics:

On one side of the scale we have a very profitable project, but then on the other side we have a rotten [project] that needs fixing and does not make any profit but is still a must. It is about balancing between which one we shall pursue. – Asset Development Team Leader (Case 5)

As indicated by the following quotes, the generative MA process itself can *encourage inquiry* and learning, where the process of generating MA answers makes one *challenge their assumptions* behind the results and even what is important from the decision point of view. In such fashion, one focuses on *understanding the mechanisms and causes* behind those MA answers, as suggested by the last quote:

The iteration process led us to finding many miscalculations made by everyone, including me, which improved the quality of the overall [budget]. – Product Development Director (Case 2)

Because if we just do [annual forecast] once and then you go like okay it's that and then you never look at it. But if you are forced to look at it every month, [...] [you need to] challenge your assumptions, did you meet [your targets] or [not]. – Head of Product (Case 2)

It is probably the biggest thing in the goal setting that we understand how to meet the goals and we think about it. It would be great if someone just gives them to you, but [this way] you can analyze the causes, so it is not just a black box telling “here are your numbers” – Business Controller (Case 4)

The prior findings suggest us, that when the decision requires a MA process, one must dive deep into really *interrogating the practices and activities* to be able to *understand those mechanisms* behind MA answers. In addition, the answers are not always enough, but as our respondents argued, one must be able to *explain those mechanisms* behind the MA answers to others:

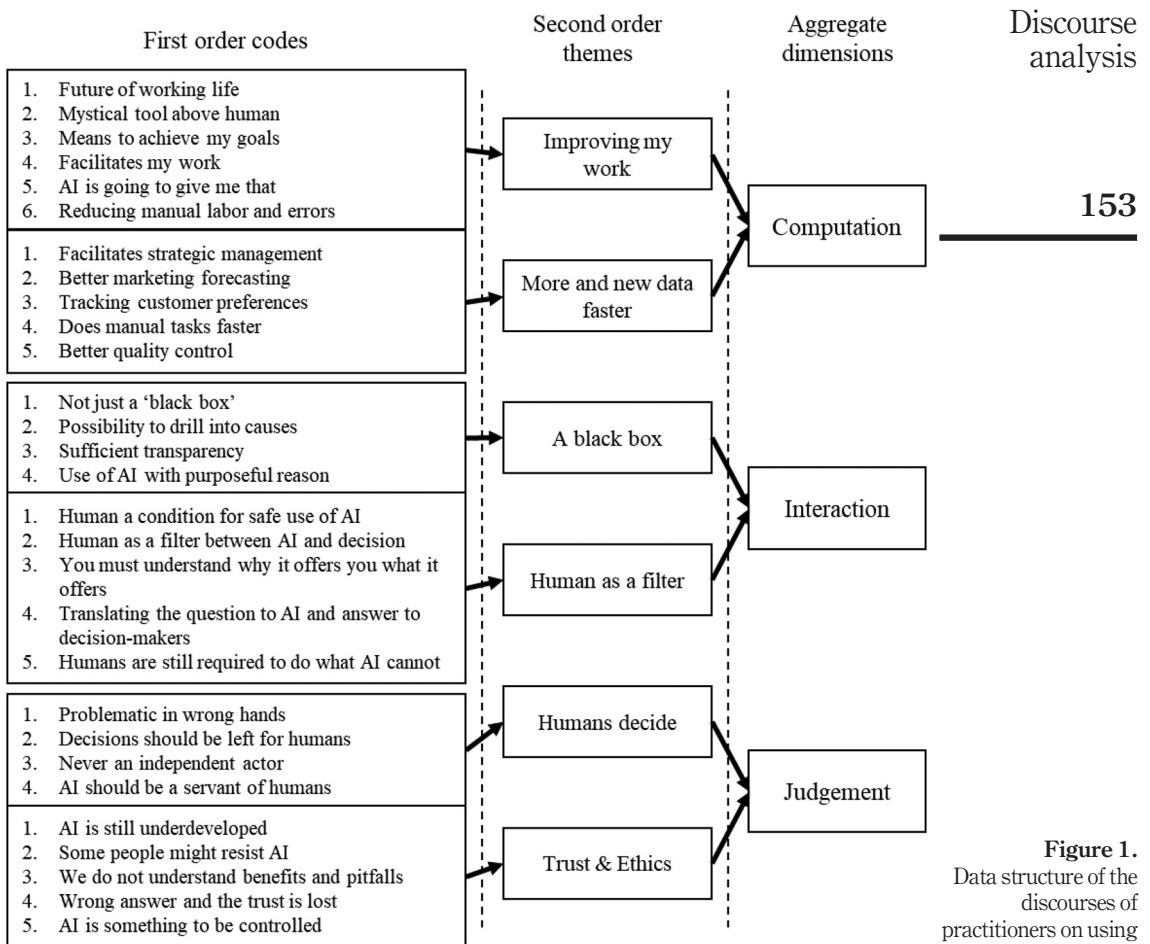
[...]what is your intuition regarding where the returns [on an investment] come from? You should now be able to explain that you have some sense behind it. You now must be able to explain others what the mechanism is, why we should do this [...] and why it is not enough that someone says that this is a good thing, [...] There must be some way to decide what we should do and what we should not do. – Investment Controller (Case 5)

To summarize, we identified seven interplays among maieutic characteristics of MA support. These are conflicts between answers and intuition inspiring debate; answers helping in identifying limitations in calculations and assumptions; questioning and steering decision-making; understanding the benefits of incomplete information; answers inspiring new kinds of MA processes or operations development; MA process encouraging learning about decision context or about the limitations of the process itself; and MA process ensuring the interrogation and communication of the mechanisms behind the requested answers. Even though the level of MA support varied, we found that each case had their unique ways of generating and using information to support the decision in hand. Importantly, the business practitioners’ descriptions regarding the process perspective revealed us that MA support is about interactive discussions on the assumptions and choices underlying the calculations as well as explanations about the processes and results. Therefore, when discussing the potential of AI, we suggest that one needs to bear in mind the process elements of MA instead of simply focusing on MA as an answer generating machine that is easy to automate.

4.2 Managers’ discourses on using artificial intelligence for management accounting support

Now that we were able to understand the context of MA digitalization within our data set, our second round of qualitative data analysis on the discourses on AI revealed a spectrum of discourses that concerned the extent of how applicable AI could be for automating MA support. Based on our analysis, we identified a spectrum with three particularly important and interesting discourses in how respondents talk about AI. On the one side we have the *computation discourse* promoting the computational possibilities of AI. On the other, we have the *judgment discourse*, emphasizing the importance of human judgment, responsibility and power as well as promoting criticism when automating MA support. Finally, somewhere in the middle we have the *interaction discourse*, which acknowledges both the possibilities in AI as well as the importance of human judgment, promoting transparency and the balanced collaboration between these two. We have collected the results of our discursive analysis in the data structure of [Figure 1](#).

First, the *computation discourse* appeared without exception in all interviews as one key theme. In *Computation discourse*, we collected the points in our data where the respondents described AI as a functional tool that allows them make various tasks more efficient. Here, the respondents viewed AI positively and with optimism, positioning AI as a positive



Source: Authors' own work

Figure 1.
Data structure of the discourses of practitioners on using AI for MA support

development in future working life. They even hierarchically placed AI above man as a mystical tool of the future, capable of performing tasks that man is incapable of. In the computation discourse, the respondents presented AI as a means by which they could achieve both their own but also the organization's common goals. AI formed in speech as a tool that employees could use according to their own individual needs. They expected AI to, for example, collect data without making mistakes in data entry as well as search and sort massive amounts of data; tasks that humans are ill-equipped and unmotivated to do:

Collecting this kind of data to an Excel, while possible, has the dangers of data entry errors. Something will be left out. Plus, it requires manual labor for you to collect the essential information from such data, when you are for example reading contracts up to 30 pages long, where there are only two pages worth of essential data. [...] So [I would use it] for these kinds of issues, collecting the essential information. – CEO of the case company (Case 3)

The respondents expected AI to facilitate strategic-management work related to marketing forecasting and tracking customer preferences and forecasting; operational-management work related to manual tasks and quality control; overall AI could make decision-making processes more efficient. As one respondent explained, in relation to algorithms that facilitate one's work, AI could be a powerful and highly desirable tool for strategic decision-making:

When you have a good algorithm, it allows you to take the correct investment decisions saying okay I'm going to, invest a bit more here, invest a bit less here. This is what we are trying to do now. But yeah, we'll get there slowly. It's going to make life so easy. [...] I believe in 10 years from now all these questions that I'm struggling with like: what my customers love about my product? Probably in 5-10 years [...] [AI] is going to give me that. – Head of Product (Case 2)

Second, the *judgment discourse* consists of critical reflections on AI presented in our data – despite the curiosity and enthusiasm. We focused the judgment discourse on the responsibility and power aspects of decision-making. For instance, respondents expressed uncertainty and distrust of AI. Their descriptions often referred to underdevelopment or rigidity of the AI, which they saw to produce potential problems for the unskilled hands. The respondents saw AI as an excellent tool, but also as something that requires control. They perceived AI as a potentially useful tool alongside human or in the use of human in the future, but not as an independent actor or decision-maker. This was evident in the respondents' decision-making considerations that could be linked to even mundane, operations management activities. These insights suggested us a consensus within the discourse where humans know better what needs to be known, and AI just provides them with this knowledge. Hence, they seemed to consider AI as a servant to humans:

I don't want decision. [...] because I firmly believe decisions should sit in the end [...] with a human, with the responsible. What I would love AI or machine learning is to give me better datapoints, help me make up my mind, make my job easier, that kind of stuff. – Head of Product (Case 2)

The respondents also expressed such distrust toward other humans, not just AI. Thus, not all employees necessarily understand the potential benefits and pitfalls of algorithms and some people would resist AI. Hence, we found that not everyone will welcome AI with open hands:

I can tell you, the resistance, that people have, that thing with 40x that I explained, years, it took years until it was accepted. People said "No way, this is not going to happen. No. I know better. I know better that this is going to do this and not this." And you prove it, time and time again that this is it, this is it, this is it, and still, you have people saying "No, the algorithm can't know better than me" – Head of Product (Case 2)

The trust issue was also evident in the respondents' descriptions about AI itself; if the AI would indeed be all-capable computation machine, any false answer would weaken how managers perceive any future answers:

I think the problem with AI, and I think this is the problem when it comes to management and people which don't have an engineering or math background and don't understand the confidence intervals and stuff, the problem with AI is that literally if the answer is wrong even one time, the trust is lost. – Head of Product (Case 2)

Third, and a central discourse that we identified in our data was the *interaction discourse*. We built this discourse on the material that concretizes the relationship between people and AI, focusing on the human-algorithm interaction. Despite the respondents seeing AI as a set

of different algorithms and tools, they did not see that AI would replace employees. Instead, they saw the role of controllers as sort of an interpreter or a filter between the algorithms and decision-makers. Similar to the judgment discourse, the respondents did not want AI to be a decision-maker but a tool to facilitate the decisions made by humans. Thus, respondents did not see that AI would replace people or remove responsibility or accountability from the human actor, but instead, the human became a kind of condition for the safe use of AI. The human functioned as a resolution to the judgment discourse in AI supported MA, the potential of which rose through the computation discourse. To build confidence in AI, the respondents hoped that there should be results that they can read, view and examine with sufficient transparency to understand what happens in the business environment:

It would be great if it [the answer] would come as given, but then we get to drill into the causes so that it is not only a “black box” that gives you that here you go [...] you are going towards these goals’ – Business Controller (Case 4)

Alongside AI, some respondents proposed a technical professional to act as an interpreter between the AI and the human. According to them, this so-called AI consultant would function as a filter between AI and the decision-makers. Our analysis suggested that such approach could help managers ensure that the chains of action in the use of AI are completed with purposeful reason and judgment all the way from the beginning to the end:

And when you have the solutions, you still have to understand why, what it offers you. The solution is one thing but why, there’s a lot of learning still, a lot needs to happen for it to work. [...] at the moment, I would see that I could be the person to be asked about it, if I had the tool. [...] so, I could then translate it [the question], act as a sort of a filter that translates it to the AI, which gives the result. Then I come and explain the result and answer the questions about why this is as it is. And if someone does not understand what it [the result] means, I would clarify it. – Business controller (Case 4)

Alternatively, other respondents suggested that financial and technical professionals could continue where AI is not able to go, for example, making more complicated analyses with incomplete and imperfect information:

[AI] could independently mine that information and show what there is. And when it is time, then we certainly need those financial experts that can dig even further – CEO of the case company (Case 3)

We find that the third, interaction discourse puts the relationship between the AI and human closer to each other and hierarchically together as co-workers for understanding the business environment around certain decisions. The interaction discourse especially promotes the need for not only humans at making decisions, but also humans in coordinating MA support (e.g. as a filter between computation and judgment), even if AI makes the support process more efficient. The interaction discourse serves as the intersection of the two preceding opposite ends of the AI discourse spectrum (computation vs judgment).

5. Discussion and conclusions

5.1 Response to the research question

This paper responds to the research question: *How can the maieutic role of accounting support be sustained in the context of MA digitalization?* In response to the question, the decision-making examples suggest that practitioners have the potential to sustain maieutic characteristics of MA support if they scrutinize and balance the three identified discourses

(computation, interaction and judgment). In the future, it is important for the practitioners to ensure that nothing crucial is lost in the MA “answer generation” process that is being automated by AI. If practitioners can identify, acknowledge, scrutinize and reflect upon the characteristics of different discourses, it is possible for them to establish a suitable balance and heterogeneity of discourses. Building upon the interrogation and debate characteristics of maieutic machines (e.g. [Busco and Quattrone, 2018](#)), the maieutic role for MA is then not dependent on whether the human or AI is the one that provides support. Instead of diminishing the maieutic role of MA support, the multitude of the discourses on AI even suggests that AI – as a necessary disruption – can even encourage debate on what MA support really is about and should be about. The presence of different modes of talk about AI – and the tensions in-between – then pave the way for maieutic AI utilization and digitalization in MA ([Astley and Zammuto, 1992](#); [Heritage and Clayman, 2011](#); [Lage, 2014](#); [Jokinen et al., 2016](#)).

Thus, our findings regarding the future potentials suggest that the implementation of AI will not necessarily compromise the maieutic role of MA support but can also embrace it, especially in processes involving non-routine characteristics (cf. [Korhonen et al., 2021b](#)). However, the conditions for such sustaining maieutic role of accounting before, during and after digitalization efforts include, according to our findings, that people continuously seek to discuss, scrutinize and debate the answers of MA support, instead of blindly accepting them. The hopes and beliefs of individuals ([Busco and Quattrone, 2018](#)) drive these three discourses, as such, the tensions among these three discourses (for example, the optimism of computation discourse and the pessimism of the judgment discourse) have the potential to inspire maieutic debate in the context of MA digitalization.

We consider the presence of all discourses important, to spark and keep up debate over whether and how digital tools could support managerial work in non-routine decisions (cf. [Korhonen et al., 2023](#)), thus actually fueling the maieutic role of numbers rather than turning it off. However, we do note that such optimistic and pessimistic views on AI are prone for bias, and one should also scrutinize the discourses individually to ensure that the discourses remain factual. Moreover, the three discourses identified are result-oriented, with interaction discourse taking the closest view on the MA as a process. Indeed, as the process focus highlights the maieutic characteristics of MA support, such maieutic support should more likely sustain if practitioners ensure that the MA process perspective holds a place within the discourses.

5.2 Management accounting supporting non-routine decision-making as maieutic machine

In the first part of our study, we analyzed the findings on the maieutic MA support for non-routine decisions with two focus-points: MA answers as part of decision-making and MA process as an elemental part of providing useful MA support for those decisions. Thus, we outlined our contribution to these viewpoints in current research in the area. First, regarding the MA answers, the maieutic MA support (e.g. [Quattrone, 2015](#); [Busco and Quattrone, 2018](#)) of asking questions and finding answers for them was seen as an interplay, in which incomplete and imperfect MA answers (e.g. [Busco and Quattrone, 2018](#); [Jordan and Messner, 2012](#); [Wouters and Wilderom, 2008](#)) play a significant role. The findings suggest that there are certain limitations in MA support, but the respondents did not see such imperfections as a reason for leaving MA support out, if they perceive the calculations as supportive (cf. [Jordan and Messner, 2012](#)). Instead, they saw even imperfect information as helpful, as long as one identifies such imperfections and understands the assumptions made in the process of generating MA answers. While we have expected that accounting digitalization might become a hampering viewpoint for the maieutic role of accounting ([Quattrone, 2016](#); [Busco and Quattrone, 2018](#)) and more specifically for operations in non-routine decisions

(Korhonen *et al.*, 2021b), our paper provides awareness of the potential of digitalization to actually enhance the maieutic role of accounting by keeping up the debate between conflicting (optimistic, pessimistic) viewpoints (Korhonen *et al.*, 2023).

Second, regarding the MA process, we consider the MA support, especially regarding those non-routine decisions, to be a series of activities from identifying a need for MA information, conducting necessary analyses, providing answers that inspire discussion, making further analyses if necessary, and after all this consideration it ends with a decision being made (possibly inspiring new MA processes). Such a process requires interaction and communication among the parties involved and is a fundamental element in a functioning MA practice (Nørreklit, *et al.*, 2010; Nørreklit *et al.*, 2016). The empirical findings of this paper highlight the importance of interactive discussions on the assumptions and choices underlying the calculations as well as explanations about the processes and results—a process that extends far beyond of MA support simply providing answers. This finding is similar to the findings of Laine *et al.* (2016), who emphasized the joint discussions and reflections on accounting facts among the managerial actors in a similar non-routine setting. To illustrate the maieutic role of MA process, in some cases, the best MA support can be to learn that the original question was a wrong one. Such learning may take place in the MA support processes featuring sufficient interaction and inquiry. While the study by Laine *et al.* (2016) was able to unveil some of the processual characteristics of collective sense-making around accounting facts, we are able to extend these findings by shedding light on the potential of sustaining maieutic MA support and related interaction within MA digitalization.

Altogether, in maieutic MA support, intermediary MA answers are only a part of the MA process (Busco and Quattrone, 2018), which interrogates the object of study until the decision-makers commissioning such MA support are sufficiently satisfied with their understanding of the decision and its context. As maieutic machines, we find that MA answers can either encourage scrutiny toward old MA processes or inspire new MA processes that both can enhance MA answers and practitioners understanding of the contingencies within the decision context. The interplay between the MA process and the MA answers is key to a maieutic machine and sustaining such role in the context of digitalization. Literature on AI have raised concerns about AI generated answers and getting those answers faster (e.g. Moll and Yigitbasioglu, 2019; Quattrone, 2016). Indeed, faster decisions do not always mean better decisions (Gärtner and Hiebl, 2018; Moll and Yigitbasioglu, 2019), but we also see light at the end of the tunnel for MA digitalization. The discourses we identified suggest that the uncertainties involved in AI encourage higher scrutiny about the origins, trustworthiness and incompleteness of MA answers (Jordan and Messner, 2012) than current MA support practices. As such, the digitalization of MA has the potential to provide a necessary disruption to make us question the existing MA support practices and understand the incompleteness of MA support, digitalized or not.

5.3 Three discourses on artificial intelligence and implications of discourses on management accounting digitalization

In the second part of our study, we identified the three discourses with different perspectives and agendas toward using AI in MA tasks. In general, the paper identifies that experts talk about AI in a spectrum of ways all the way from *computationally* as a capable tool to make their life easier to; *judgment-wise* AI as a mere machine incapable of taking responsibility; or *interaction-oriented* as something that alters the work of MA professionals and requires new types of human AI interaction. Thus, the discourses identified in the academic literature and public debate (e.g. Duan *et al.*, 2019; Roberge *et al.*, 2020; Kerr *et al.*, 2020) are also present amongst the business practitioners discussing using AI for MA support.

The dominance of individual AI discourses could have certain potential benefits as well as pitfalls. The dominance of the *computation discourse* could lead into automating and digitalizing something that practitioners do not yet clearly understand, thus leading to unexpected outcomes. In our interviews, the respondents sometimes gave AI even a mythical status, seen quite optimistically as something that will solve all our issues. On the one hand, this discourse can push automation without fully understanding the “what” is being automated. On the other hand, it drives digitalization, with potential efficiency gains being the purpose of such AI implementations. However, difficulties in identifying the processes for increased automation (Korhonen *et al.*, 2021b; Leyer and Schneider, 2021) while not necessarily knowing how to give roles for digital tools in decision-making (Bolander, 2019; Quattrone, 2016; Bathaee, 2018) can be a vicious combination.

The dominance of the *judgment discourse* could lead into losing opportunities to improve the organizational processes with the new tools available, due to the over-emphasis on the risks and uncertainties related to those tools. With reasonable caution, the predictive capabilities of AI have the potential to enhance decision-support types of MA support (Bolander, 2019; Bathaee, 2018) and thus, augment decision-making (Leyer and Schneider, 2021). However, automating decision-making is a completely different case, as AI cannot take responsibility of the decision it makes (Bolander, 2019; Korhonen *et al.*, 2021a, 2021b; Leyer and Schneider, 2021).

The dominance of the *interaction discourse* can lead the focus of MA digitalization away from the decisions and more toward what practitioners expect the digitalized MA process and the role of accounting professionals to look like. As part of the discourse, AI tools can seem like black boxes in contrast to more traditional analyses, lacking in transparency and as such, possibly leading to false conclusions faster (cf., Quattrone, 2016; Gärtner and Hiebl, 2018; Moll and Yigitbasioglu, 2019). Therefore, the interaction discourse is more interested in the process of digitalization (and the process of using AI in MA support after digitalization) than what kind of answers it generates. As such, practitioners do not consider AI as neither under nor over competent but as one potentially useful technology, among others.

5.4 Balancing three discourses for management accounting digitalization in maieutic fashion

Finally, we provide insights on how to balance the three discourses context specifically, so that practitioners can sustain the maieutic characteristics of MA in the context of MA digitalization. Our insights are based on our argument that using AI in MA is a discursive practice – a claim build upon literature on discourses (e.g. Doolin, 2003) and the constructivist view of practice (e.g. Nørreklit *et al.*, 2010; Nørreklit, 2017; Nørreklit *et al.*, 2006, 2016). While it is worth researching how digitalization could streamline this iterative decision-making process, such research should understand the process being digitalized as well as the context [i.e. where, how and why MA supports decision-making (Hall, 2010; Jönsson, 1998)]. The discourses among managers provide an additional layer that drive digitalization by either potentially enabling or hindering such use.

Naturally, these three unique discourses will emerge as a *combination of discourses*, as they did in our interviews. The presence of multiple discourses should more likely enable debate and a wider view on how practitioners should really implement AI and what kind of implications different implementations might have. On the one hand, if we are lacking even one of the discourses, we might not sufficiently interrogate either the quality of the answers and the data that they are based on (without computation), the transparency of the analyses resulting in “black boxes” (without interaction), or the quality of the questions and if we fully grasp what is being decided upon (without judgment). On the other hand, building

upon [Busco and Quattrone \(2018\)](#) and tensions driving the maieutic process, a combination of competing discourses can encourage debate helping maintain sufficient interrogation and scrutiny within the maieutic characteristics of accounting support. For example, even if AI provided ethically questionable answers, such answers could maieutically spark a discussion that could later result in ethically sustainable conclusions made by humans once considered and debated upon. However, there is a cause for concern in how much these discourses still focus on MA answers, even if the people talking about AI already recognize the importance of the MA process.

A “balance” does not always mean that each discourse maintains an equal position in the overall discussions. On one hand, emphasis on computation or judgment discourses empowers decision-makers where computation discourse can accelerate digitalization while the judgment discourse decelerates it. On the other hand, emphasis on interaction discourse empowers the MA support with defining on how MA should be digitalized. As such, “balancing” is a way to influence the MA digitalization. One such direction that holds promise is not to try converting MA into an answer machine it never was, but to use AI in MA support to maintain the maieutic characteristics of MA support, but in a more efficient way.

5.5 Concluding remarks

This paper makes a timely, empirically based contribution to MA research in the context of MA digitalization. The decision-making examples and the multitude of AI discourses suggest that practitioners can potentially sustain maieutic characteristics of MA support in the context of digitalization, if the practitioners scrutinize and balance the three identified discourses. In the future, it is important for the practitioners to ensure that they lose nothing crucial in the MA “answer generation” process that AI automates. Indeed, the contradictory viewpoints of the discourses have the potential to prevent premature closure of discussion and debate concerning the MA support within non-routine decision-making. However, our findings also suggest that these three discourses currently may neglect the learning opportunities within the MA process by focusing more on the use of MA answers in decision-making. These theoretical implications provide a detailed contribution to the literature on accounting as a maieutic machine ([Busco and Quattrone, 2015](#); [Quattrone, 2015](#); [Busco and Quattrone, 2018](#)) that has been seeking for insight on how people’s hopes and beliefs—and the discourses driven by these hopes and beliefs—maintain the pursuit of perfection that is yet never achievable ([Busco and Quattrone, 2018](#)).

This paper has several practical implications regarding both the maieutic accounting support as well as AI implementations from a discursive perspective. First, following the preliminary work by [Quattrone \(2015, 2016; 2017\)](#) and others ([Busco and Quattrone, 2018](#); [Jordan and Messner, 2012](#); [Quattrone et al., 2016](#)) we also encourage practitioners not to fear the incompleteness of accounting information or the endless pursuit of financial perfection. MA in non-routine decisions is fundamentally maieutic, as MA has to work with incomplete and imperfect data, focus on uncertain contexts, understand future and serve decision-making where it is not always clear what is being decided. MA is not able to provide perfect answers ([Busco and Quattrone, 2018](#); [Jordan and Messner, 2012](#)) and AI is unlikely able to solve the incompleteness of such answers. AI is, however, expected to expand the capabilities of current MA support and, for example, provide efficiency to the MA process. Nevertheless, practitioners should not accept (or decline) answers without sufficient scrutiny, regardless of how the answers are generated. However, as it currently stands, AI is just a tool and it is up to us humans to decide how that tool is used.

Second, this paper provides insights for organizations considering the implementation of AI algorithms and tools for MA support. Building on prior literature, our data suggests that

the presence of all three discourses drives discussion toward debate, where practitioners do not accept both the questions made by humans, and the answers calculated by AI are as such, but interrogate them in a maieutic fashion with the due diligence they deserve. However, our findings also suggest, that the discussion on AI today does not quite recognize the important role of the MA process being automated with AI. We recommend that organizations both discuss their expectations for AI in a balanced way and develop their readiness to adopt AI in decision-making – not just adopt the tools. By seeking to use AI for sparking discussions rather than pursuing definite answers, management accountants could start using AI not only to bring closure but to open new debates more efficiently by harnessing the power and speed embedded in algorithms.

Identifying and examining the discourses around AI, MA and maieutic machines is relevant for MA practice. Exploring of discourses based on interview data has its limitations, and thus, we would like to see a more extensive view on the communication and reality construction in future discourse studies. A more longitudinal perspective could grasp the details of naturally emerging discourses both in MA decision-support practice as well as in actual AI implementations and use, for example, by studying the discourses managers have about MA support in their daily managerial work or by examining the reasoning behind decisions to adopt or not to adopt AI in MA support. As our study focuses on the digitalization expectations of practitioners, further studies should also examine MA support after longitudinal use of AI for MA, to unveil the possibilities and pitfalls of sustaining maieutic MA support in long term. Furthermore, our qualitative data set was not suitable for examinations on whether some AI discourses are more common or dominant than others. Considering the discussed risks of homogenous discourses dominating the AI dissemination, quantitative studies on the expectations and discourses of practitioners using larger data sets could provide us insight to how we perceive AI more generally as a society. Finally, as this paper welcomes a heterogenous combination of various discourses, the nature and evolution of such discourses and their impact on managerial work remain a fruitful topic of further inquiry.

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