



UPPSALA
UNIVERSITET

Företagsekonomiska institutionen
Department of Business Studies

Roles of Accounting Information in Managerial Work

Cecilia Gullberg

Dissertation presented at Uppsala University to be publicly examined in Hörsal 2, Ekonomikum, Kyrkogårdsgatan 10, Uppsala, Tuesday, 10 June 2014 at 13:15 for the degree of Doctor of Philosophy. The examination will be conducted in Swedish. Faculty examiner: Docent Matti Skoog (Stockholms universitet).

Abstract

Gullberg, C. 2014. Roles of Accounting Information in Managerial Work. *Doctoral thesis / Företagsekonomiska institutionen, Uppsala universitet* 171. 77 pp. Uppsala: Företagsekonomiska institutionen.

Managerial work has been described as fragmented, action-oriented, and highly interpersonal, leaving limited room for formal planning and analysis. Even so, managers are expected to engage with accounting information for planning and analysing their area of responsibility. Accounting information has, however, been found to be tardy, aggregated, and incomplete, leading managers to rely on a wide set of additional informational resources. Still, managers' doings and concerns tend to remain largely in the background in much management accounting research, which leaves us with limited knowledge of how accounting information comes into play in managers' work. Moreover, technologies aimed at accommodating managers' information needs are becoming increasingly sophisticated, and allow for timelier and more precise accounting information. This gradual transformation of technologies has led to questions concerning how management accounting is practised, and how it is related to accounting information systems. The aim of this dissertation is to identify roles of accounting information in managerial work in order to better understand the link between managerial work and management accounting systems. The dissertation consists of two volumes, each with three papers and a summary appraisal. The empirical material consists of interviews with a cross-sectional sample of mainly first-line managers, and a study of a construction firm including interviews with higher- and lower-level managers, observations of workshops where higher-level managers and staff discuss the management accounting systems, and internal documents. Overall, this dissertation suggests four roles of accounting information, based on its capacity to serve as representation, translation, key and perspective. Essentially, these roles reflect the ability of accounting information to both aggregate and disaggregate "reality". The potential of each of these roles is shaped by managerial, organisational and technological issues, and is not always easily realised. The potential of these roles is particularly challenged in an environment with many local contexts. By accentuating what makes accounting information more and less valuable vis-à-vis other informational resources, this dissertation adds clarity to the emerging body of literature on managers' situated use of accounting information, and to the debate on information technologies and management accounting.

Keywords: Accounting information, Managerial work, Managers, Management Accounting Systems, Accounting information systems, Informational resources, Construction industry

Cecilia Gullberg, Department of Business Studies, Box 513, Uppsala University, SE-75120 Uppsala, Sweden.

© Cecilia Gullberg 2014

ISSN 1103-8454

urn:nbn:se:uu:diva-223653 (<http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-223653>)

Acknowledgements

Another dissertation, another acknowledgement page. (This must not be read sarcastically.) As I ponder in the prologue of this dissertation: what is different this time? Solely judging from the acknowledgement page of my licentiate dissertation, my conclusion would be that not too much is different this time. Not least, I mentioned “lack of sleep” and “self-doubt” as two common parts of the licentiate journey, and indeed, they accompanied me on this journey as well. On a more positive note, also quite a few of the people mentioned in the acknowledgements of my licentiate dissertation have accompanied me all the way to this dissertation. A few new ones have joined along the way (as I suggest in the prologue, in some sense this part ought to be different from the first one.). All the same, you deserve my gratitude.

Without my supervisors, this dissertation would not have been written. Jan, ever since I first met you, you have maintained that my research topic is interesting and important. Your enthusiasm has been particularly valuable in times when “self-doubt” took over. And thank you for introducing me to exciting theoretical fields – you are an academic explorer. Alf, even after several years, you have not ceased to surprise me. You always have an alternative perspective up your sleeve that inspires me to think and rethink. And how do you manage to always find something interesting in my texts – even when they are confusing fragments?

A number of other senior people have also contributed throughout the process. Nils-Göran, is there anything that you do not know about management accounting? Or grammar, for that matter? You have improved everything from my understanding of accounting information to my use of semicolons. Fredrik, thank you for providing a supportive research environment, and for being so energetic. Carl-Johan, thank you for valuable and encouraging comments on my final seminar. Anders, remember when you recommended me for a PhD position before asking me? Well done!

Hans Englund and Einar Iveroth, I am grateful for the solid work you did as critics at my final seminar. Your comments were the start of an exciting transformation of my manuscript.

Lars Engwall, Pär Ågerfalk and Birger Rapp, thanks for generously funding my time as a PhD student, and for providing a helpful research environment at the Swedish Research School of Management and Information Technology.

I am also indebted to the people who contributed to the empirical dimension of this dissertation. Pontus, thanks for opening the door to the construction industry. And to all the managers who agreed to participate in my interviews in spite of a heavy workload – thanks for your time.

To my fellow PhD students with whom I have shared the arduous task of writing a dissertation: Ravi, with time I have learnt that you are not only critical, but also kind. Jenny, it is always a pleasure to chat with you over coffee (and cake!). Johanna, experiencing the construction industry together with you was fun. Özgün, I love your e-mails, although I am sometimes bad at responding to them. And there are many more of you who make everyday life in academia more enjoyable.

Tobias, I believe that it is fair to say that this dissertation has become an integral part of our life together, even on occasions when I really meant to take some time off from it. Countless times I have interrupted the peace and quiet of our dinners or vacations by comparing the restaurant we are sitting in to the restaurants in Ahrens and Chapman's seminal works, or by contemplating the potential use of information systems in empirical settings such as shepherding in Kyrgyzstan or bus services in Cambodia. I am amazed not only that you listen, but also that you always have intelligent things to add. I think that you have an inner social scientist. Thanks for sharing this journey with me.

Årsta, April 2014

Cecilia Gullberg

List of Papers

This doctoral dissertation consists of two volumes. The first volume - my licentiate dissertation - *Puzzle or mosaic? On managerial information patterns*, includes three papers and a summary appraisal, which here will be discussed as one unit: Gullberg (2011). The second volume includes three papers that each will be discussed singly in this summary appraisal, and finally brought together with the insights from Gullberg (2011). The papers and their status are presented below.

- I Gullberg, C. & Westelius, A. (2011). Backbone or helping hand? On the role of information systems and non-systematic information in managers' work. *Informing Science: The International Journal of an Emerging Transdiscipline*, 14, 139-160.
- II Gullberg, C. & Westelius, A. (2011). Systems, roles and relationships in the governance ecology. Presented at the *Australian and New Zealand Academy of Management Conference*, University of Canterbury, Wellington, December 7-9, 2011, after the defence of my licentiate dissertation.
- III Gullberg, C. & Parment, A. (2013). Controlling the unmanageable? On management control in a knowledge-intensive organisation. Presented at the *European Accounting Association Conference*, Paris Dauphine, Paris, May 5-9, 2013, after the defence of my licentiate dissertation.
- IV Gullberg, C. Timely accounting information as affordance. Submitted to *Qualitative Research in Accounting and Management*. An earlier version was presented at the *European Accounting Association Conference*, Paris Dauphine, Paris, May 5-9, 2013.
- V Gullberg, C. Control questions and the mental construction pace: Shapes of accounting. Submitted to *Journal of Accounting and Organizational Change*.

- VI Gullberg, C. Professional accounting and the managerial profession: Diversity and dissent in a construction firm. Submitted to *Construction Management and Economics*. An earlier version was presented at the *Nordic Academy of Management Conference*, University of Iceland, Reykjavik, August 20-23, 2013.

Contents

Prologue – the curse and the blessing of studying managers and information twice	9
Introduction.....	11
Managers and accounting information at Construction Firm	15
The theoretical landscape(s)	17
In search of a theoretical label.....	17
Becoming a management accounting researcher	18
Managerial work in the background of MAS.....	20
Accounting information in managerial work	22
Accounting information as incomplete.....	22
Accounting information as non-deterministic	24
A question of practice?	25
Summary: Accounting information in managerial work	27
My view of management accounting systems.....	27
Accounting information.....	27
Information systems.....	29
Information systems and their context.....	30
Managers in the construction industry	31
Chapter summary	32
Reflections on methods used	33
“Analysing the past to prepare for the future”.....	33
Stumbling on the future – a case study of a construction firm.....	34
Identifying interviewees.....	36
The interview situation.....	37
Observations, interaction, and documents.....	40
Iterating between proximity and distance – a PhD student’s identity crisis	41
Making sense of it all	42
“Timely accounting information as affordance”	43
“Control questions and the mental construction pace: Shapes of accounting”	44
“Professional accounting and the managerial profession: Insights from a construction firm”	44

Did I learn from the past?.....	45
Concluding discussion	47
Revisiting the pieces of research	47
The licentiate dissertation – <i>Puzzle or mosaic? On managerial information patterns</i>	47
Paper IV – “Timely accounting information as affordance”	49
Paper V – “Control questions and the mental construction pace: Shapes of accounting”	50
Paper VI – “Professional accounting and the managerial profession: Diversity and dissent in a construction firm”	51
Assembling the pieces of research – roles of accounting information in managerial work.....	52
Accounting information as representation – what is happening?	53
Accounting information as translation – what are the implications of what is happening?	55
Accounting information as key – why is this happening?	57
Accounting information as perspective – how can we reconsider what is happening?	59
Chapter summary.....	62
Implications and future research	65
Theoretical implications	65
Practical implications	66
Future research	67
References.....	69
Appendix 1.....	77

Prologue – the curse and the blessing of studying managers and information twice

This is the beginning of a dissertation about managers and accounting information. More exactly, it is the beginning of the second part, because the very beginning was written a few years ago, as part of my licentiate dissertation (Gullberg, 2011). Trying to formulate a new introduction, I realise that having a licentiate dissertation in my luggage is almost as much a curse as a blessing. It provides some lessons learned, as well as an excellent springboard for further exploring issues that due to constraints in time, scope and method could not be thoroughly addressed, yet it also forces me to grapple with the question of how to assemble the two parts. What is different this time? A number of theoretical perspectives have entered my world since Gullberg (2011) was published. So have a number of managers, from a different context. Not least, *I* should be different this time. After all, you can never step into the same river twice, so in some sense the second part must be different from the first. But then again, how does the second part follow from the first part? Is it a serial? Is it more of the same? I believe that it is a challenge to introduce something that has already been introduced. Therefore, an encounter that turned out to be important to the beginning of my doctoral study will set the stage for this new introduction.

Introduction

On a sunny afternoon in April 2011, I visited the change management department of a construction firm. They were interested in finding out how operations managers at different levels in the company worked with accounting information, what information they needed to make decisions and monitor their work, where they could find it, whether they were missing something; basically, how accounting information was implied in these managers' work. Underlying this wish to better understand managers' information habits was the ambition to renew a rather obsolete and fragmented management accounting environment in terms of information systems, performance indicators, work methods, and more general philosophies of management accounting. They repeatedly stressed that they wanted to better understand managers' views on accounting information at different levels, and in the various business units, thus also reflecting an ambition to take the potential diversity of the business into account. Meeting people who shared some of my interest in managers and their information habits in local contexts was exciting, and the sunny afternoon spent in their office was the beginning of the second part, as well as this introductory chapter. It also further strengthened my belief that managers, information and information systems constituted a highly relevant area of study, something which had been theoretically motivated in Gullberg (2011).

To provide a brief summary: managers' engagement with information for decision-making and control has long been of interest to both researchers and practitioners of management accounting and control. After all, managers are assumed to perform a range of information-related tasks, such as problem-solving (Simon, Guetzkow, Kozmetsky & Tyndall, 1954), interactive control (Simons, 1995), planning (Anthony, 1965), and performance evaluation (Hartmann, 2000), to mention a few. However, there is evidence from various points in time that formally designed management accounting systems do not always accommodate managers' needs very well. Accounting information has been considered tardy, aggregated, and one-sidedly monetary, confirming what managers know rather than providing new insights, and typically requiring managers to use complementary resources to accomplish their work (e.g. Clancy & Collins, 1979; Johnson & Kaplan, 1987; McKinnon & Bruns, 1992; Mendoza & Bescos, 2001; Pierce & O'Dea, 2003; Preston, 1986; Simon et al., 1954; Van der Veecken & Wouters, 2002).

In fact, managers are known to spend relatively little time on reflection and formal analysis, and more time on action and interpersonal matters (e.g. Carlson, 1951; Kotter, 1982; Mintzberg, 1975). Overall, however, studies on the more situated ways in which managers engage with accounting information to perform various parts of their work are rare, compared to the more significant body of organisation-level studies in management accounting (Hall, 2010). Yet, following a shift towards the situatedness of social life (e.g. “The practice turn”, Schatzki, Knorr-Cetina & von Savigny, 2001), there is renewed and increasing interest in management accounting as a “practical activity” (Chua, 2007, p. 493), e.g. how accounting information is interpreted and drawn upon according to what is required in local contexts (e.g. Ahrens & Chapman, 2002), or what managers do when engaging with accounting information (Hall, 2010). Furthermore, the technological development has enabled accounting information to be faster (even real-time), broader in scope (monetary *and* non-monetary), drilled down (allowing more precision, at lower levels of aggregation), more forward-looking (enabling what-if scenarios), and more mobile (enabling access to information more or less wherever you are) (Chaudhuri, Dayal & Narasayya, 2011). Some contend that analytics is “the new science of winning” (Davenport & Harris, 2007). With the ever-faster development of management information technologies in mind, scholars have pointed to the necessity of addressing the link between management accounting and information systems (e.g. Berry, Coad, Harris, Otley & Stringer, 2009; Rom & Rohde, 2007), not least in regards to managerial decision-making and control (Arnold, 2006). In sum, our theoretical knowledge of how managers engage with accounting information seems limited, rather aggregated, and potentially out-dated, although there is an emergent interest in opening up the black box.

With a few additions and updates, the above section summarises the essence of how Gullberg (2011) was introduced, and after the meeting at the construction firm, I could conclude that there was also practical relevance in this. My strengthened conviction of both the theoretical and practical relevance of digging deeper into the various ways in which managers engage with accounting information in local contexts indeed spurred my interest and motivation. As it turned out when I started gathering empirical material at the construction firm, these managers were rather different compared to the managers in Gullberg (2011). Among other things, they were more interested in following up financial results, and in measuring and comparing results in general. At the same time, they were careful to stress their independence from formal management accounting tools, feeling that relying on one’s experience and feelings was crucial. Furthermore, at the construction firm I was exposed not only to operations managers’ views on accounting information, but also to the views of the change management department, and other staff. The impressions from the construction firm thus broadened the

view of the topic that I had got from my licentiate study, and further strengthened my idea that managers' engagement with accounting information is bound up with other resources, as well as with diverse intentions and values. Given the need for more studies on the situated use of accounting information in managers' work, the aim of the dissertation has been formulated as follows.

The aim of this dissertation is to identify roles of accounting information in managerial work in order to better understand the link between managerial work and management accounting systems.

By *accounting information*, I mean the quantitative information produced within an organisation's *management accounting systems*, meant to serve managers in making decisions and following up their business in line with the goals of the organisation (e.g. Anthony, 1965; Horngren, 1995)¹. A focus on *managerial work* is intended as a way of moving beyond an organisational-level focus, towards managers' more mundane actions and concerns, and how these shape the roles of accounting information. Furthermore, a focus on managerial work should allow for *identifying* roles of accounting information as they appear in managers' work, rather than imposing predefined roles. Finally, a focus on managerial work should enable a closer look on management accounting systems and their specific properties, and how they interact with management accounting issues as they appear in managers' work, i.e., to address the link between management accounting systems and managerial work.

The aim is intended to reflect the content of both the licentiate and the doctoral dissertation, although the licentiate dissertation has its own aim, which is differently formulated. The licentiate dissertation is based on interviews with a cross-sectional sample of managers, covering various private, public and non-profit organisations. The managers are typically responsible for an operating unit, although a few more staff-oriented managers, e.g., a director of finance, a CIO, and a few controllers, are also included. In two organisations, a government agency and a municipally owned housing company, several managers are interviewed. In contrast, as has been indicated above, the doctoral study builds on a case study of a construction firm, including interviews with operations managers at different levels, observations of meetings and workshops where both managers and staff were present, internal documents, and dialogue over time with the change management staff. The different pieces of research are briefly introduced below.

¹ The terms accounting information and management accounting systems are more thoroughly addressed in the chapter "The theoretical landscape(s)".

- The licentiate dissertation, *Puzzle or mosaic? On managerial information patterns*, addresses a number of issues concerning managers and information; most notably, it discusses various degrees of formalisation of information, and relates managers' use of accounting information to more general management issues pertaining to communication, culture and the idea of being a good manager.
- Paper IV, *Timely accounting information as affordance*, opens up the black box of a well-established management information characteristic, namely timeliness, by reconceptualising it into a number of more specific types of timeliness, and by discussing how material, organisational and human aspects interact in achieving these types of timeliness in managers' work.
- Paper V, *Control questions and the mental construction pace: Shapes of accounting*, illustrates managers' efforts to monitor their financial performance as a continuous flow of activities guided not only by accounting information, but also by shared understandings and by the very materiality of the construction site.
- Paper VI, *Professional accounting and the managerial profession: Diversity and dissent in a construction firm*, takes a more comprehensive perspective, highlighting how both managers and staff reason regarding the value of accounting information, and detailing the underlying reasons for these views.

The dissertation is organised as follows. Next, I briefly introduce the construction firm, which accounts for an important part of the empirical basis of this dissertation. Then, I provide an overview of and discuss the theoretical domain, in order to more thoroughly position the dissertation vis-à-vis previous research on the topic. Thereafter, I account for and reflect upon the methods used in conducting the doctoral study. The subsequent chapter starts with a recap of the findings of Gullberg (2011) and the three more recent papers, and then proceeds with a discussion where the insights from the different pieces are brought together and discussed in light of the overarching aim of the dissertation. Finally, I outline the theoretical and practical implications of the dissertation, which are followed by suggestions for future research.

Managers and accounting information at Construction Firm

This chapter briefly describes the empirical setting of the doctoral study, in order to prepare the reader for the coming chapters.

The studied construction firm, hereafter referred to as CF, offers a range of products and services in the construction industry, ranging from large-scale infrastructure projects to small maintenance jobs, including e.g. commercial buildings, private housing and public sector projects. CF is organised according to business units, geographical areas, and product groups. Construction work is typically organised around projects, implying a continuous change in who, e.g. co-workers, suppliers and customers, works together over time. Managers at CF do however strive to work with recurrent customers, and there is often a rather long history between local managers and their customers. Nevertheless, a project can often be considered different even from a similar project previously undertaken elsewhere in the organisation, e.g. because there are other people involved, the market conditions are different, and the physical setting offers varying possibilities for undertaking construction work. Moreover, the execution of a project implies varying degrees of uncertainty, not least in the larger, more complex projects. The production plan and budget are seldom set in stone from the beginning, but are refined with time. It is not uncommon that a project changes in scope as a result of e.g. unexpected problems in the ground, changes that need to be documented and then negotiated with the customer.

Managers at CF are located in a rather tall hierarchy, and the group of interviewees includes mainly production managers, project managers, district managers, and regional managers, plus the vice CEO of one of the business units. Their roles and responsibilities sometimes overlap, yet each managerial level has a few distinguishing traits. Production managers are located on the construction site and are responsible for the production in terms of time and costs. Their work sometimes involves negotiations and reporting to the customer. Project managers are formally responsible for the contract and so have the responsibility for the entire financial result of the project. A project manager is typically responsible for several projects simultaneously, and may be located on the construction site or at the headquarters. Their work

involves negotiations and reporting to the customer, and sometimes they are active in searching for new projects. District managers are those mainly responsible for maintaining and establishing relationships with old and new customers, monitoring coming projects on the market, keeping an eye on the competitors, and choosing what projects to compete for. They are responsible for the consolidated result of their district, and are located at the headquarters. Regional managers are supposed to have a more strategic, overarching role, including supporting district managers when competing for large projects, coordinating resources within the region, and monitoring the world outside. All these levels include responsibility for personnel, which at the lower levels concerns more short-term allocation of human resources within and between projects, and at the higher levels implies more long-term human resources planning and talent management.

Just like the rest of the industry (Dubois & Gadde, 2002), CF has a long tradition of decentralisation, meaning that managers have had considerable freedom in choosing and executing projects. There are, however, efforts to increasingly coordinate the organisation, e.g. by narrowing the specialisation of different districts, and by encouraging internal procurement and sharing of resources. Also, while financial performance measures have long been prominent in the internal reporting of CF, non-financial measures related to e.g. customer satisfaction, employee satisfaction, safety, environment and purchasing, have increasingly gained ground. At the time of the study, CF had a rather fragmented and out-dated management accounting and information systems environment: there were several accounting information systems that partly overlapped, and many of the systems were considered generally user-unfriendly. Moreover, there was a lack of common methods and definitions. As mentioned in the introductory chapter, there was an on-going project that was aimed at renewing the management accounting and information systems environment. When the project was presented by a change manager, he used the words of Pfeffer and Sutton (2006): “everyday there are opportunities for companies to use better information to gain an advantage over the competition” (p. 12). One aim of the project was “to make business-minded decisions and control our business in a professional way”, and to “base decisions on facts and analysis”. In order to achieve this, “the right information” needed to be available to “the right person” at “the right time”, hence aiming to tailor accounting information to managers depending on e.g. business unit and hierarchical level. Such information could include both financial and non-financial information, pertaining both to more “mundane” information (e.g. cash flow and backlog) and to more strategically derived indicators (e.g. degree of compliance with work methods, and goals related to the strategic areas).

The theoretical landscape(s)

This chapter is intended to provide a map of the theoretical landscape in which this study is located. My ambition is to clarify to the reader where this study stands in relation to the various streams of research on the theme “managers and information”. This is not least necessary in order to understand the theoretical contribution of the dissertation, but also to appreciate the more underlying logic that does not always surface clearly in the rather limited space allowed in the papers, as well as to understand the choices I have made along the way. In contrast, this chapter does not provide an exhaustive overview of the relevant literature; each of the three papers is more specific with regards to definitions, concepts and more in-depth in scope. Thereby, this chapter is an important complement to the theoretical sections of the papers.

In search of a theoretical label

For a long time, I have labelled my research area “managers and (accounting) information”. Adding the ever-faster development of technologies that support managers’ use of information provides an interesting angle on the topic that opens up for questions about how managers use information today, and constitutes a fairly well-functioning “elevator pitch”. The theoretical label of that area, however, has not always been clear to be. As pointed out by a number of scholars, the field of management is characterised by fragmentation, parallel paradigms, and limited consensus about what should be studied and what constitutes theory (Weick, 1995; Whitley, 2000). The theme “managers and information” appears in fields as diverse as management accounting, knowledge management, organisation, communication, information systems, and psychology, each with their subfields. As a fresh PhD student I was criticised for using “a supermarket of theories”, i.e., combining thoughts from different theoretical fields without apparently creating a coherent whole of it. One important thing for me has hence been to understand where one theoretical field ends, and where another starts, and if and why it is wise to move beyond the borderland.

Another thing for me to figure out has been what constitutes a theory in the first place. When teaching on the undergraduate level, I usually tell my students that theory is a lens through which you can look upon the world. This lens imbues you with predispositions that draw your attention to certain things, at the expense of some other things (cf. Suddaby, Hardy & Huy, 2011, p. 237). Furthermore, theory is often described as something that should hold explanatory power (Ahrens & Chapman, 2006; Ferris, Hochwarter & Buckley, 2012), answering “why” questions, and not just “what” and “how” (Sutton & Staw, 1995). Some also think of theory as a set of boxes and arrows (Whetten, 1989), or as a set of explanatory concepts (Silverman, 2006). However, these definitions have not always been useful to me in the process – in fact, quite the contrary sometimes. Some of my key references emphasise thick empirical descriptions over explicit concepts, e.g., some of the classical studies on managerial behaviour (Carlson, 1951; Kotter, 1982), studies on managers’ use of accounting information (McKinnon & Bruns, 1992; Preston, 1986), as well as the more recent studies that picture management accounting as a practice (Ahrens & Chapman, 2007; Jørgensen & Messner, 2010). This has made me wonder in what sense they are theories, and whether I should turn to some more “box and arrow”-like literature, or at least a literature that is more concept-dense.

Also, I have gradually realised that in addition to understanding what a theory is it is also important to distinguish between the different roles that theories may have. Locke and Golden-Biddle’s (1997) literature review of how theoretical contributions are created provide a few ways of problematising of which two have been helpful to me in the process of understanding. Extant literature may be incomplete, meaning that the researcher points to a gap that needs to be addressed, i.e., yet another stone to place on the path. Extant literature may also be inadequate, pointing out oversights in present literature, which could be remedied by introducing new perspectives or models borrowed from other literatures. The latter thus indicates that it may be a good idea to combine various theoretical fields, but not without grouping them neatly and explaining why one field is needed to enrich another; I would need to distinguish between what is the theoretical domain where I want to make a contribution, and what is the theoretical domain that I want to use to achieve this (cf. theory as a tool vs. theory as an end product, Llewellyn, 2003). This will be elaborated below.

Becoming a management accounting researcher

The information mosaic - how managers get the information they really need (1992), written by management accounting researchers McKinnon and Bruns, was one of my rather early readings and constitutes one of my recur-

rent references. However, I did not think of my theoretical area as management accounting. McKinnon and Bruns point out the shortcomings of accounting information, and how managers rely on various informal sources of information in their day-to-day work. As I started gathering data for my licentiate dissertation I did not, with a few exceptions (e.g., McKinnon & Bruns, 1992; Preston, 1986; Simon et al., 1954; Van der Veecken & Wouters, 2002), recognise much literature that accurately reflected the individual managers and their engagement with specific pieces of information in their day-to-day work that I encountered in my interviews. With regards to “managers and accounting information”, the management accounting literature seemed to me to be a body of knowledge that was dominated by more aggregated accounts of the use of budgets and performance measures and how they could contribute to the overall organisational good (e.g. Abernethy & Vagnoni, 2004; Kald, Nilsson & Rapp, 2000; Kaplan & Norton, 1996; Simons, 1995; see also Hartmann, 2000 for a review of the literature on the reliance on accounting performance measures), often seeking to establish relationships between a certain use of accounting information tools and the effects on behaviour or on firm performance. The studies that delved more deeply into the use of accounting information in certain roles mainly focused on management accountants (e.g. Granlund & Malmi, 2002; Lindvall, 2009; Pierce & O’Dea, 2003; Scapens & Jazayeri, 2003). Since I discerned patterns in my data concerning managers’ wish to be a good manager and to communicate extensively with their subordinates, I looked for theoretical support in media richness theory (e.g. Daft, Lengel & Trevino, 1987). I also tried to make sense of my data in terms of “management control as package” (Malmi & Brown, 2008), by thinking of these managers’ information habits as related to both accounting information and “softer” issues of communication and culture. “Management accounting” did not seem to be an appropriate label for what I was doing.

However, after being advised to read Ahrens and Chapman’s (2007) “Management accounting as practice”, as well as talking to various scholars with an interest in practice, I gradually realised that the few studies that I had looked at that portrayed the mundane information habits of managers could also be labelled management accounting. These could in fact be seen to do some kind of inadequacy problematisation (Locke & Golden-Biddle, 1997) of the management accounting literature that I had more or less dismissed, i.e., they challenged extant management accounting research in terms of its underlying assumptions about formal accounting tools as uncontested sources of management information, or as deterministic of behaviour. After finishing Gullberg (2011), as I shall return to in the next chapter, I simply decided that “management accounting” would be my area. As I gradually gained insight into the theoretical landscape(s), I also realised that theories look different, and that not all contain clearly defined boxes and arrows. In

fact, some theories strive to problematise the boxes and the arrows, and aim at generating *emergent* guiding and explanatory principles rather than static predictions (Feldman & Orlikowski, 2011; Sandberg & Tsoukas, 2011). Ahrens and Chapman's (2007) notion of situated functionality constitutes an interesting example; they portray management control as something situated, emerging in the on-going production and reproduction of a practice, and bound up with the people involved and with other practices. After the aforementioned insights I started to increasingly view myself as a management accounting researcher.

To summarise my points: defining and labelling one's research area is not a clear-cut task in a fragmented field like management, and may well be the result of some coincidence, encounters in the field, and advice received at various seminars and conferences. Perhaps the label *per se* is not always what is most important, but rather *having* a label that helps you to problematise extant literature and to articulate your theoretical contribution, and to communicate with other researchers. Thus, the remainder of this chapter will draw the contours of "managers and information" with management accounting as the point of departure. The chapter also includes a clarification of my view of management accounting systems, accounting information and technology, and an overview of research related to managers in the construction industry.

Managerial work in the background of MAS

The idea of management accounting systems (MAS) has been described as providing information for economic decisions, and as motivating people towards organisational goals (e.g. Horngren, 1995). Even though MAS concern all organisational members, managers are vital actors in that they are responsible of an aggregated result that is meant to contribute to the organisation (e.g. Hopwood, 1973). This obviously includes a whole range of sub-topics related to managers and their use of accounting information, such as: specific tools: e.g. budgets, cost-allocation methods, and rules, their properties: e.g. timeliness, scope, and integration, their main purpose: e.g. score-keeping, learning, communication, and accountability, various stages: e.g. design, implementation, and use, their effects: e.g. organisational performance, or individual behaviour, and a myriad of other possible angles. There are the more functionalist studies on how MAS are best implemented and suited to their environment, and how dysfunctional effects can be avoided, as well as the more interpretative and critical studies that foreground tensions, resistance, and unintended consequences associated with MAS (see Chua, 1986, for a review). In spite of their assumedly central role in MAS, manag-

ers and their work often remain in the background in most management accounting studies. There are probably several reasons for this. Many studies of more functionalist nature assume accounting information to be an important part of managers' work, and therefore seek to understand its implementation, use, or intended effects from an organisational point of view (e.g. Bouwens & Abernethy, 2000; Hansen & Van der Stede, 2004; Kald, Nilsson & Rapp, 2000). Furthermore, many studies focus on the events surrounding a particular management accounting tool or happening, e.g. a performance measurement system and its gradual refinement (e.g. Andon, Baxter & Chua, 2007), an ERP system and its impacts on management accounting practices (e.g. Scapens & Jazayeri, 2003), or a budget-cutting meeting where accounting information is given meaning through different interpretative frames (e.g. Boland & Pondy, 1986), which may draw attention to selected parts of managers' work, yet still foreground the processes immediately related to the particular accounting tool and possibly also to other roles. Moreover, there are studies with a clearly pronounced control and accountability perspective (although control and accountability could be considered inherent in most management accounting studies), e.g. how people in organisations (including managers) respond to being held accountable for their actions and results (see Hartmann, 2000 for a review), or the tensions following from new accountability logics (e.g. Dent, 1991). A few of the more accountability oriented studies do focus more on managers' daily work and their engagement with accounting information to perform that work. I shall return to these later in this chapter. Nevertheless, even though managers are certainly present in many management accounting studies, the manager and his/her work is typically not the point of departure.

The need to open the black box and start theorising beyond the more aggregated, or obscured accounts of managers and accounting information has been acknowledged by a number of scholars (Chua, 2007; Hall, 2010; Jönsson, 1998; Vaivio, 2008). More specifically, Hall (2010) criticises studies that focus on organisational level issues "because they are typically based upon assumptions about, rather than a detailed investigation of, managerial behavior" (p. 310). This omission, I would say, is even more evident considering the advances that have been made of management information technologies. Jönsson's (1998) article "Relate management accounting research to managerial work!" certainly still appears to bear relevance.

Possibly in response to the more functionalist studies, various researchers have highlighted both symbolic and political aspects of management information (e.g. Ansari & Euske, 1987; Brunsson, 1990; Burchell, Clubb, Hopwood, Hughes & Nahapiet, 1980; Czarniawska-Joerges & Jacobsson, 1989; Feldman & March, 1981), for example the idea that the use of accounting information and information systems serves to legitimise the person

or the organisation in the eyes of external stakeholders. In this dissertation, symbolic use of information is downplayed in favour of the situated use of information (cf. Ahrens & Chapman, 2007), which unlike legitimising should not be seen as a pure contrast to functionalism, but rather as a more contextualised version of it. This will be elaborated below.

Accounting information in managerial work

As mentioned above, scholars are increasingly interested in exploring management accounting from the more mundane perspective of managerial work, for example by better understanding

the specific instances in which managers use accounting information in their work. For example, what do managers do when they use accounting information to identify problems, surprises and opportunities? What do managers do when they integrate accounting and other forms of information? And what do managers do when they relate accounting information to specific operational concerns? (Hall, 2010, pp. 310-311)

Not least, Hall (2010) emphasises the value of investigating managers' use of accounting information not only in specific decision situations, but in other managerial situations, since decision-making is expected to be but a minor part of managers' work (cf. Kotter, 1982; Mintzberg, 1975). Similarly, Chua (2007) calls for a view of accounting as a practical activity rather than an abstract technique, where

the specificity of time, place, people and problems lead to specific translations of abstract technique (p.490).

Although this interest has mainly emerged during the past decade, a number of studies in a fairly similar vein have been conducted earlier. The more recent works along these lines are slightly different, although they share some concerns. Examples from the two streams are discussed below.

Accounting information as incomplete

Some management accounting studies have provided insights into both the formal and informal ways through which managers are informed. McKinnon and Bruns (1992), in a study of various manufacturing companies, demonstrate how managers use a variety of pieces of information – “the information mosaic” – to manage their work. Generally, information from formal reports is perceived as too aggregated and too late in arriving to prompt action in the short run; instead, relying on informal dialogue, gossip and gut feeling is common. The kind of information that these managers use on a

daily and weekly basis is mostly of operational kind, expressed in physical counts rather than in money, whereas financial information takes on more importance in the longer term. Similarly, Preston (1986) describes two orders of informing: the official and the informal, where plant-level managers largely ignore the information produced at higher levels, and instead exchange information with those who are deemed trustworthy and competent. Also studying manufacturing companies, Simon et al. (1954) conclude that managers have a number of strategies to stay informed, e.g. keeping personal notes (black books) and observing the operations, which serve them well in the short run. Financial information is deemed more useful in the longer run, as an indicator of trends, as a reminder of events, and as a translator of activities that are not apparent in day-to-day work. In his literature review “Accounting information and managerial work”, Hall (2010) points out exactly the above three studies as particularly illuminating, partly because of their rich and detailed empirical accounts, partly because they do not assume any particular role for accounting information but rather attempt to explore what any such role may be, and partly because they do not solely focus on wider organisational processes. Furthermore, there is an interesting case study of the use of cost information in the construction industry (Van der Veeken & Wouters, 2002), which, much along the lines of Jönsson and Grönlund (1988), points out the different skills used by higher- and lower-level managers respectively, and consequently the different use of cost information. The work of lower-level managers is found to be more action-oriented and experiential, and therefore requires specific pieces of information that can be related to previous experience, rather than aggregated financial information.

There are also a few more quantitatively oriented studies concluding that managers use informal sources of information as a supplement, not a substitute, to accounting information (Clancy & Collins, 1979), that managers’ views on accounting information incompleteness vary across functions and sectors (Mendoza & Bescos, 2001), and that managers and management accountants perceive of the value of accounting information differently (Pierce & O’Dea, 2003), without, however, providing illustrating empirical accounts. Also relevant to mention in this stream of literature is Pitkänen and Lukka’s (2011) study of formal and informal information. In addition to emphasising the need to combine both formal and informal feedback in organisations, they outline three dimensions along which formal and informal information can be conceived of: source (e.g. report or interpersonal communication), time (periodic or ad hoc), and rule (mandatory or voluntary). Although accounting information in managerial work is not the primary focus of their study, Pitkänen and Lukka discuss the incompleteness of accounting information.

Whereas the above studies mainly focus on the information that managers use to handle their work, a few other studies examine the incompleteness of accounting information when managers are being evaluated, which gives a slightly different perspective. For example, Jordan and Messner (2012) illustrate how managers start to care more about the incompleteness of accounting indicators as the organisational style of control moves from enabling towards coercive. As long as the style is more enabling, managers accept the incompleteness of the measures, i.e., that they do not provide a full and fair view of the business performance. Evaluation pressures also seem to lead managers to keep informal records of their operations, as a defense mechanism when communicating with their superiors (Hopwood, 1973; see also Simon et al., 1954).

Common to the above studies is an interest in understanding managers' use of information for decision-making and control beyond what could be expected from what is formally produced, or, as in Jordan and Messner's (2012) study, an appreciation of what is going on "between the lines" of what is formally measured. Consequently, they recognise the importance of the context of managerial work in making accounting information meaningful and actionable.

Accounting information as non-deterministic

More recently, a number of management accounting scholars have challenged conventional management accounting by emphasising the possibility that accounting information is not entirely deterministic of managers' behaviour. Ahrens and Chapman, in a number of works (2002; 2004; 2007) discuss how reports and measures are enacted by local managers in a restaurant chain, not in complete opposition to how it is prescribed from top management, but rather in a slightly modified, situated way. In the most recent of these three works, they use the notion of "situated functionality" (Ahrens & Chapman, 2007) to convey the idea that management accounting systems can be modified and used according to a manager's interpretation and agenda, and the shared understandings in his/her context, and that this is an ongoing process. The accuracy of the accounting information is of subordinate importance, as long as it provides a basis for discussions and for visualising future activities (ibid.). In a similar vein, but in the context of a worker cooperative, Bryer (2011) discusses accounting as "learnt social practice", thereby stressing that accounting information does not impose a determined structure, but rather prompts discussions about resources and activities, and shapes people's shared understandings and identities.

A few similar studies have been done with a more explicit emphasis on the relationship between management accounting and strategy, e.g. Fauré and

Rouleau (2011) advance Ahrens and Chapman's (2007) notion of situated functionality in their study of how middle managers and accountants rely on conversational tactics to reinforce strategies, and Jørgensen and Messner (2010) suggest that accounting information may not play a key role in holding people accountable in new product development, but rather acts as a general understanding that guides practices indirectly, in combination with strategic goals that determine the relative importance of accounting.

While also challenging the more top-down-oriented management accounting literature, these studies are less concerned with the ways through which managers become informed and the distinction between formal and informal; their emphasis rather lies on how the outcome of accounting is shaped through on-going action. Similarities and differences between the two streams are further discussed below.

A question of practice?

One thing that distinguishes the latter from the former of the two streams of literature presented above is the engagement with practice theory, something that much of the literature that emphasises the non-deterministic nature of accounting draws on in one way or another. The use of practice theory in producing more situated and multifaceted accounts of organisational life is not unique to the field of management accounting, but can be seen, and is probably more widespread, in related fields such as strategy (Whittington, 2006), risk management (Corvellec, 2010), IS/IT (Orlikowski, 2007), learning and innovation (Brown & Duguid, 2001), and social sciences in general (Schatzki et al., 2001).

Being at a nascent stage, the practice field is still heterogeneous, with diverse influences and varying emphasis (Corradi, Gherardi & Verzelloni, 2010; Feldman & Orlikowski, 2011; Sandberg & Dall'Alba, 2009; Whittington, 2011). However, there is some agreement that there are more empirical, or literal practice approaches, on the one hand, and more theoretical, or philosophical practice approaches, on the other hand. According to e.g. Geiger (2009) the former seem to foreground the actors and their doings (e.g. Johnson, Melin & Whittington, 2003; Orlikowski & Yates, 1994) whereas the latter appear to view a practice as something that both reflects and creates the social world and that challenges rationalist views of the world (e.g. Brown & Duguid, 2001). These approaches may be emphasised to different extent: when sharing her personal journey with practice theory, Orlikowski appears to have gone from a more empirical focus, via more explicit conceptualising, to a more philosophical stance (Feldman & Orlikowski, 2011). The theories drawn on in practice studies are also rather diverse, including e.g. the Foucauldian concept of power, Actor Network Theory, structuration theo-

ry, sense-making, sociology of professions, and the resource-based view (Vaara & Whittington, 2012).

In spite of its heterogeneity, a few recurring elements can be discerned in the practice body of literature. First of all, there is the emphasis on the mundane and recurring activities – what people do in the context of their daily work. With a focus on activities, Sandberg and Tsoukas (2011) suggest that we will also see the actors, the tools and the purposes with which activities are performed. For activities do not exist in a vacuum, but are guided by shared understandings, rules and knowledge that connect people (e.g., standards of excellence) (e.g., Sandberg & Tsoukas, 2011; Whittington, 2011). This cultural and historical space could be thought of as a “site” (Schatzki, 2005) where practices take place and are continuously enacted, sustained and sometimes reformed as activities unfold, i.e., the recognition of a mutually constitutive relationship between activities and context. There is also the ambition to integrate concepts that are usually dichotomised (e.g. subject – object, structure – agency) (e.g. Feldman & Orlikowski, 2011; Reckwitz, 2002). Furthermore, the materiality of practices is increasingly recognised, i.e., the things needed to perform one’s practice, be it a football, special clothes, a hammer or, as is particularly relevant in this study, an information system (e.g. Reckwitz, 2002; Schatzki, 2005). These aspects may have varying emphasis in different studies (Feldman & Orlikowski, 2011).

In light of the above, the former stream of literature, “Accounting information as incomplete”, seems to include some elements of practice. Following the classifications outlined above, the stream of literature on “Accounting information as incomplete” could be seen as studying practice in a more empirical, literal way, i.e., what these managers do as opposed to what organisations have, and how accounting information helps or does not help them in these doings. The stream of literature on “Accounting information as non-deterministic” could be seen as studying practice in a more theoretical way, and encompassing most of the defining characteristics, implying a more pronounced focus on how accounting information imposes order to different extent, while simultaneously being reshaped over time. Although the two strands of research differ in their methodological approaches and conceptualise managers’ engagement with accounting information differently, they also share concerns with people’s actions in attaining the organisational goals, and the possibilities and constraints of accounting information in this. Therefore, they are both included in this dissertation, yet with somewhat different emphasis in the different papers, and with the contributions mainly directed at the first stream of literature.

Summary: Accounting information in managerial work

In sum, there are a number of studies trying to challenge and fine-grain our conventional knowledge of managers and accounting information, with slightly different orientations and emphasis. Some take a more or less explicit practice stance, whereas others conceptualise managers' use of accounting in other ways. They bring to the fore a diversity of seemingly mundane activities in managers' work that could be seen as management accounting. Overall, I view these studies as dealing with "accounting information in managerial work", or "the situated use of accounting information in managerial work". By and large I sympathise with this emerging stream, and my intention is mainly to "put another stone on the path" (Locke & Golden-Biddle, 1997) rather than to provide new perspectives on it, i.e., contribute to reduce incompleteness rather than inadequacy. Paper IV does however respond to the inadequacy of previous studies with regard to the concept of timeliness, by challenging the uniformity and the black boxing of the concept.

This dissertation can thus be seen as responding to both incompleteness and inadequacy in extant research. I would say that my main focus is to add to the emerging body of literature on the situated use of accounting information in managers' work, in particular in light of ever-faster technological developments (incompleteness). In so doing, however, I simultaneously challenge and point out inadequacies in the top-down-inspired management accounting literature. I do want to stress that my intention is not so much to challenge and criticise, as it is to expand a growing part of the literature. Had I written this dissertation 20 years ago, I probably would have had to argue more vociferously for the inadequacies in extant research than now when "the practice turn" (Schatzki et al., 2001) and studies with similar approaches have paved the way.

My view of management accounting systems

As mentioned a few times, management accounting systems (MAS) can be seen to include the production and use of information for decision-making and control (e.g. Anthony, 1965; Horngren, 1995). Therefore, I will elaborate a bit on how I view accounting information and information systems, both of which could be considered vital parts of a MAS.

Accounting information

Up till now, I have used various terms, such as accounting information, management information, and performance measures, which may have

caused some confusion to the reader regarding what I mean by “accounting information”. Firstly, there is the question of what *accounting* information is. As pointed out by Pitkänen and Lukka (2011), this has long been seen as the information, often financial, produced as part of a regular feedback loop intended to follow up plans and goals (e.g. Otley & Berry, 1980). For the past few decades, a number of more holistic approaches to accounting information have seen the light of day, e.g. the balanced scorecard (Kaplan & Norton, 1996; Olve, Petri, Roy & Roy, 2003) and the performance pyramid (Lynch & Cross, 1995). To me, it therefore seems natural to include both monetary and non-monetary information when discussing managers’ engagement with accounting information. Whereas these more holistic approaches still take a largely feedback-oriented approach, i.e., periodic information used to evaluate and hold people accountable, I believe that it is also relevant to include the accounting information that is used to address decisions of varying magnitude that arise in managers’ work. This was acknowledged by Anthony (1965) in his distinction between strategic, tactical and operational control. In my empirical material from CF, pieces of information such as historical profitability of certain customer groups, and turnover per employee are mentioned as part of managers’ decisions about what projects to tender for and how to price them. This kind of information is not produced as part of a periodic feedback loop, but as part of the management accounting systems, serving as input to decisions, and therefore I would term it accounting information. On the other hand, managers at CF need to keep track of human resources availability, i.e., the number of people in a certain position available during a certain period of time. This kind of information is also important when deciding what projects to tender for, and when planning for future recruitment. However, at CF, this is produced in spread sheets in each district – not as a part of a larger system – meaning less transparency and opportunity to share and coordinate resources. That, in my view, is not accounting information. In sum, I tend to see quantitative information that is formally produced for follow-up and decisions in the managerial work as accounting information. My interest in the managerial work indeed implies that *other* pieces of information are vital resources for managers to draw on *together* with accounting information.

Secondly, there is the question of what *information* is. As some management scholars have explicitly recognised, information can be seen as the refined product of data, or abstractions that have been interpreted and endowed with meaning (e.g. Boland, 1993; Weick, 1985). In the information systems literature, Langefors (1995) discusses two steps of interpretation, from data to information, and from information to inference. I sometimes use the term data in this dissertation, usually when signalling that I refer to something that is encompassed in a system. Apart from that, I do not distinguish between data and information, e.g. to signal that I refer to different stages of the in-

terpretation process. Hence, I typically use the word information in a fairly colloquial sense, even when recognising and discussing managers' efforts to make sense of information.

Information systems

My research topic being roles of accounting information in managerial work entails that some types of technology are more in focus than others. Zuboff (1985) introduced the terms “automate” and “informate”, meaning that new information technology not only served to automate transactions but also created a valuable “by-product” in the form of information, which in turn could empower people in organisations. This informing quality of information technology is particularly important when it comes to managers and accounting information. Providing managers with information has long been a focus area among “technologists” (see Haigh, 2001, for a historical review), and the systems developed to accommodate managers' need have had many names, e.g. MIS, EIS, DSS, ERP, BI, etc. I am less concerned with their names, and more with their intended functions. In fact, there may not even be much consensus about what a certain system includes (Klaus, Roseman & Gable, 2000). And, as stated in the chapter about CF, a number of different accounting information systems are in place in the firm.

Nevertheless, these systems have been ambitious efforts to provide solutions that are as all-encompassing as possible, and with time, they have become more and more sophisticated. An important feature of contemporary management information technologies is the single, central database, which enables transactions from various parts of the organisation, e.g. sales, finance, human resources and manufacturing, to be registered in the same place, in turn enabling integration and streamlining of the information flows (Davenport, 2000). Albeit risky, integration of the various information flows in the organisation entails a number of benefits, such as wider scope, real-time information, and granularity (Chaudhuri et al., 2011). Researchers have suggested that more attention be devoted to how accounting information systems come into play in managerial decision-making and control (e.g. Arnold, 2006), and consequently it is the “informating” dimension of information systems that I am mainly concerned with in this study, compared to studies on more transaction-oriented tools and their influence on people's work (e.g. Boudreau & Robey, 2005). I am not suggesting, however, that managers do not engage with transaction-oriented information systems, and I do touch upon it, e.g. in paper V and paper VI, when discussing the costs of reporting data into the systems.

Information systems and their context

In addition to supplying information (data), information systems may be seen as consisting of different properties, and as interacting with their context to different extent. This is conceived of and conceptualised in several ways, as evidenced in a number of literature reviews (e.g. Leonardi & Barley, 2010; Leonardi, 2013; Orlikowski, 2010; Orlikowski & Iacono, 2001; Orlikowski & Scott, 2008).

Although not entirely consciously, I would say that from the very beginning I have regarded information systems as something that managers can circumvent and modify, hence subscribing to the view that IT may both enable and constrain, yet is not entirely deterministic of people's behaviour (cf. Leonardi & Barley, 2010). Gullberg (2011) and the three more recent papers all draw more or less attention to managers' ways of using and not using information systems, and finding alternative ways of being informed. Orlikowski and Iacono (2001) refer to this view as *ensemble*, which reflects an understanding of IT as part of a larger system, where the users' interpretations of and interactions with the information systems, and various cultural and social factors, influence how IT is used. IT is here seen as neither an independent nor dependent variable, but as "embedded" (ibid.). However, information systems are usually accompanied by rules and guidance provided by the management accounting systems (cf. Burns & Scapens, 2008). For example, it may in some sense be possible for a manager to neglect the information system and rely on experience or stories from colleagues, i.e., the information system does not necessarily impose any constraints in a certain situation, but there may be internal regulations or unspoken conventions inclining a manager to follow-up his/her finances on a certain basis.

My emphasis on the information system artefact itself does, however, differ significantly among the pieces of research. In Gullberg (2011), I treat information systems completely as monoliths without specifying their material properties and how they enable or constrain the user. Things, or materiality, and how they come into play in organisational life have long been taken for granted, but are now gaining increasing interest (Carlile, Nicolini, Langley & Tsoukas, 2013). As a result of growing insights along the way, based on new literature and advice from other researchers, I have come to focus more on the materiality of information systems. In paper IV, I foreground various material aspects of accounting information systems, while also acknowledging the role of the social context in producing effects of technology. This is done by using the theoretical lens of affordances. In paper V, I conceptualise managers' monitoring of financial performance as a practice, i.e., as an ongoing array of activities where some aspects of accounting information systems are discussed as part of these practices. Paper VI is less concerned with

the materiality of information systems, and in that sense more similar to Gullberg (2011).

What is also important to point out is that this study does not focus on change, at least not on the larger scale. An immense number of studies on information systems in this stream of literature focus on to what extent and how a new information system brings about changes in tandem with human intentions and interpretations (e.g. Iveroth, 2010; Wagner, Moll & Newell, 2011). I study how managers draw on extant accounting information systems in performing their work, i.e., on-going and recurrent use, rather than implementation. On-going and recurrent use could on the other hand be seen as an enactment that gradually changes managers' engagement with accounting information systems, as is illustrated in paper V.

Managers in the construction industry

Whereas the research presented up to now in the theoretical chapter covers many kinds of empirical contexts, this section outlines the particularities of the construction industry, and what these imply in managers' work.

A central feature of the construction industry is the organising around projects, which in turn has resulted in decentralised decision-making and control and local adjustments (Dubois & Gadde, 2002), although evidence suggests that the industry is moving towards increased formalisation through e.g. quality and environment control (Styhre, 2011). Styhre (2011) argues that informal control in the projects is highly prevalent, resting on collectively enacted norms, reputation and professional pride that together govern what constitutes a doing a good job. Such *esprit de corps*, or communities-of-practice, have been suggested to augment quality standards and short-term productivity while simultaneously preserving old methods and hampering innovation in the industry (Dubois & Gadde, 2002; Styhre, 2011). Styhre (2008) even talks of social capital and a strong oral culture that forms the basis of knowledge sharing at the construction site, instead of more systematic reliance on formal project tools. The suggested reasons for the prevalence of such informal means of control in the industry are several. As indicated above, there is a distinct professional identity; an identity that appears to embrace uncertainty and ambiguity while dismissing the idea that everything could be predicted and ordered into a control system. Furthermore, the temporary nature of the work makes every project seem novel in a sense, therefore making managers less inclined to use formal tools for knowledge sharing (ibid.). The fact that projects are limited in time and rarely involve the same people also creates obstacles to learning above the individual level (Dubois & Gadde, 2002). In general, conservatism and inertia are some of

the less flattering qualities of the industry that keep recurring in the literature (e.g. Harty, 2008), seen in e.g. the implementation of ICT (Jacobsson & Linderoth, 2012; Samuelson, 2008). Styhre (2010) talks of a “culture of complaint” about inertia and lack of innovation in the construction industry that serves as an ideology that helps to glue the community together, and to cope with the uncertainty that characterises the industry.

A few studies have focused more explicitly on the managerial role in the construction industry, in particular that of the site manager. Contrary to the conventional and gloomy view of middle managers as marginalised and “stuck in the middle”, Styhre and Josephson (2006) conclude that construction site managers are proud of and committed to their work, although they do express concern regarding an increased, heterogeneous and sometimes conflicting workload. In line with previous research (e.g. Jönsson & Grönlund, 1988), van der Veeken and Wouters (2002) suggest that construction site managers often deal with unexpected problems and therefore need action-centred skills and concrete pieces of information, rather than aggregated accounting information. To a certain extent, lower-level managers become informed through observations of daily work, whereas accounting information is most useful in understanding the net effects of a large number of complex activities over time (ibid.). Similarly, in a survey of perceptions of ICT in the industry, higher-level, off-site managers displayed a more positive attitude towards ICTs such as cost control systems than did the on-site managers, whose work was described as more chaotic and less suited to the logic of ICT (Jacobsson & Linderoth, 2012).

Chapter summary

In this chapter, I have pointed to a relative lack of, yet an increasing interest in, studies of the situated use of accounting information in managers’ work. Two main streams have been identified: studies on the incompleteness of accounting information, and studies on the non-deterministic nature of accounting information. In particular the first stream is scarcely researched, and it is first and foremost there that this dissertation is intended to make a contribution. One way towards a better understanding of a situated use of accounting information in managerial work is the foregrounding of recurring activities and concerns. Furthermore, actors are assumed to use various tools in performing their activities, both material things such as information systems, and other resources such as shared understandings and knowledge. Moreover, I have highlighted the possibility that material things could have both enabling and constraining effects on managers’ engagement with accounting information, whereas managers are also assumed to have the ability to invent alternative ways of being informed.

Reflections on methods used

Just like the previous chapter, which not only introduced the theoretical domain of this study but also provided some reflections on the process of immersing myself in this domain, this chapter is intended not only to account for the methods applied, but also to give more detailed insight into my iterations, doubts, discoveries, and personal journey throughout the research process.

“Analysing the past to prepare for the future”

The above heading refers to an article on the art of doing a literature review, but I think that it reflects rather well my feelings after having finished my licentiate thesis. Just as Webster and Watson (2002) suggest, instead of being overly critical to prior work, one should acknowledge that knowledge accumulates slowly and highlight what can in fact be learnt from past work. Indeed, I feel that this applies throughout the whole research process, but the finalising of Gullberg (2011) was one clear such moment for contemplating and refining my approach. Looking back on my licentiate process, as well as on my research diary at the time of finalising the licentiate dissertation, mainly two lessons learned stand out.

One thing concerned method. Gullberg (2011) builds on interviews in private, public and non-profit organisations. The interviewees are typically lower-level operations managers, yet also include a few higher-level managers as well as a few controllers and other staff people. In total, the interviewees amount to around 25, and cover at least 15 organisations, hence some organisations are studied in greater depth than others. In one organisation, a government agency, I conducted seven interviews (see Gullberg, 2011 for a more detailed account of how the empirical material was gathered). Interviewing several people in the same organisation provided a better contextual understanding of each interviewee’s account, and left me with a wish to do a larger study in an organisation, possibly with managers at different hierarchical levels. Also, I was interested in learning about other methods for data collection than I had used in my previous study, e.g. observations and questionnaires, which could possibly provide new perspectives on the topic.

Another lesson concerned my theoretical “home”, as has been described in the theory chapter. In general, I found it hard to put my foot down and decide what exactly about managers and information to focus on in my licentiate dissertation, or equally important – what not to focus on. Although I realise that this is a problem for many PhD students, I believe that it also reflects my personality, and therefore may be difficult to radically change during the course of my PhD studies. Nevertheless, it was my ambition to define a more narrow focus in the doctoral dissertation. I shall return to these aspirations later on in this chapter.

Stumbling on the future – a case study of a construction firm

Just as I was trying to re-start and re-define my work in line with the above, something turned up. One of my supervisors had been in contact with a company that was about to initiate a change in their management accounting systems, including information provision, methods, and system support, and they were interested in having our research group involved in the project. After a few meetings with the change management team at the company, I realised that this would be interesting for me. The company hierarchy involved several levels of managers, and the change management team was wondering about these managers’ information habits. What information did they need in their work? Where did they find it? Did they find it? How could the management accounting systems better accommodate their needs? This was in line with my research interests, and so I wrote a short proposal to one of the change managers about what I wanted to focus on. I was not particularly specific at that time, but as indicated above, I wanted to study several levels of managers. I also wanted to exclude one of the three business units, in order to enable the studying of a more homogeneous type of operations. The change management team allowed me to conduct interviews, and also invited me to attend the various workshops and meetings that were to be arranged as a part of the change project and that were intended to cover aspects related to managers’ information use. Furthermore, I had access to a number of internal documents, and I also had the opportunity to use a desk in conjunction with the change management office, which enabled continuous dialogue with the team. That is how I ended up conducting a case study of managers’ engagement with accounting information in a construction firm.

Before encountering this opportunity, I hesitated between studying one or two organisations. The value of single case studies has been debated (e.g. Dyer & Wilkins, 1991; Eisenhardt, 1991); not least single case studies have been described as difficult to generalise beyond the specific setting, com-

pared to multiple case studies that allow for replication and corroboration across contexts (Eisenhardt, 1989). On the other hand, there are scholars who argue that the specific may well be of general interest (e.g. Ahrens & Chapman, 2006; Silverman, 2006). Davis (2010) even suggests that generalising in organisational science is problematic and overly ambitious, because the social and technological context of organisations constantly changes. Instead, research that looks into “particular processes at particular times” (ibid., p. 707) is more realistic and yet valuable. There is also the idea that single case studies generate richer stories, which in turn help understanding the context, and the role of the theoretical constructs in that context (Dyer & Wilkins, 1991). A look at some of the previous studies on managers’ situated use of accounting information suggests quite a mix of methods: multiple cases of manufacturing companies (McKinnon & Bruns, 1992), dual cases of breweries (Ahrens, 1997), single case study of a plastics container division (Preston, 1986), single case study of a construction company (Van der Veeken & Wouters, 2002), cross-sectional questionnaire (Mendoza & Bescos, 2001), single case study of a restaurant chain (Ahrens & Chapman, 2002; 2004; 2007) and single case study of a metal industry company (Pitkänen & Lukka, 2011), yet with a majority of single case studies. The access to interviewees and meetings and workshops in the construction company made me reluctant to study a second organisation, not least considering that I was halfway through my PhD studies and had previously collected empirical material for my licentiate dissertation. There are clearly arguments both for and against relying on a single case study, and I feel privileged for having had the opportunity to conduct both a single case study and a cross-sectional interview study. That way I hope I have reaped the benefits of both, while also addressing some of the problems associated with each approach. On the other hand, the different levels of managers at CF could be seen as separate cases, thus in fact making this a multiple case study. I have however not focused particularly on analysing differences between e.g. higher- and lower-level managers; I occasionally mention a few differences between them, but I would not say that it makes this a multiple case study.

In addition to the choice between one or several cases (or other methods for that matter), it is relevant to discuss the choice of a construction firm. What can be learnt from studying managers’ engagement with accounting information in such a setting? Naturally, since the case turned up at the opportune moment, access seems like a strong argument. For as interpretative researcher Robert Stake reminds us, the opportunity to learn, rather than mere representation, is important when choosing a case (Stake, 1995). Furthermore, the construction industry is being subject to increasing pressure also to measure more intangible dimensions of the business, such as safety and environmental impact, which implies that a number of management accounting tools could be expected to be in place. Another characteristic of the industry is the

project-based organisation of work – a setting that has not received much attention in the area of management accounting (Van der Veecken & Wouters, 2002). Moreover, the studied company is fairly large and hierarchical, which presents the opportunity to gain perspectives from several groups of stakeholders. As stated above, my licentiate dissertation includes empirical material from various types of organisations, so I have been able to compare my findings from the construction company with those of other sectors, thereby better understanding what aspects are valid beyond a construction context. In addition, comparisons have been made with previous studies in other empirical contexts. Further details about how the case study unfolded follow below, and will be summarised in Tables 2, 3 and 4, in Appendix 1.

Identifying interviewees

In total, 30 interviews with managers at five hierarchical levels were conducted: one vice CEO, seven regional managers, seven district managers, eight project managers, and seven production managers. The production managers were responsible of costs, whereas the rest of the managers were responsible of profits. All of them had responsibility for personnel. The interviewees were selected so as to roughly “represent” the two business units that I had chosen to focus on, as well as both bigger and smaller cities in different geographical locations in Sweden – without, however, causing excessive travelling. Although I was open to potential differences between business units and/or among geographical areas, gaining an equal distribution among them was of subordinate importance to me. Rather, it was the change management team that wanted a fair distribution in order not to be accused for favouring or downplaying certain groups. Whereas some interviewees were initially pointed out by the change management team as suitable (suitable here seemed to be people who had participated in previous management-related projects, and people who did not mind expressing their views), others were recommended by subsequent interviewees, and yet others were identified later on at workshops. In essence, the key was to find people who were actually willing to spare an hour and a half, because that could not be taken for granted.

Most of the potential interviewees had received an e-mail from one of the change managers, briefly explaining that a researcher would contact them to schedule an interview about their views on management accounting and information needs², which would serve as input to the change project. When

² The e-mails were formulated in Swedish, and typically included the words ”styrning” and ”informationsbehov, strategiskt och operativt”

I contacted the interviewees I (again) briefly explained the scope of the interview and that no preparations were needed, and stressed that they would remain anonymous and that no sensitive company information would be published in my academic texts. Both when formulating the e-mail and when initiating the interview I preferred to remain brief and vague, so as to give the interviewee as much room for interpretation as possible. I feared that specifying what aspects of information I wanted to talk about would generate preconceptions and preparations resulting in “script-following” (see the following section). Above all, I did not want the interviewees to believe that I only wanted to talk about management accounting in the sense of formal tools.

A few responded to my requests rather quickly, whereas some never responded. Others refused to participate due to lack of time. Yet others responded after a few reminders or a phone call. Whether this relative difficulty reflected scepticism towards management accounting, academia, or something else, is hard to say. As I learnt more about the firm a picture emerged of a “fire-fighting culture” and of the idea that matters not pertaining to production or customers were a source of inefficiency, something which I believe provides some explanation for the attitude among the interviewees. There is also the possibility that interviewees perceive the interview as an arena for political action (Alvesson, 2003), which in this case could imply that the final mix of managers largely consisted of those who wanted to influence the management accounting environment. So what does that mean? If the interviewees saw the interviews as an occasion for political action, then they had rather different political motives. Some seemed sceptical towards headquarter initiatives and administration in general and complained about the excessive demands placed on them from above. Some were rather content with the management accounting environment the way it was, while others were not. In general, the interviewees seemed to find it difficult to see their management accounting practices in a different light, and identify areas for improvement. The relative difficulty to schedule the interviewees indeed troubled me in the beginning, but in retrospect, given the diversity of interview accounts, I believe that the mix of managers is not biased towards a particular view of management accounting.

The interview situation

The interviews lasted between 50 and 150 minutes, and the average duration was 80 minutes. All interviews were recorded and transcribed. Due to logistical constraints, eight interviews were conducted on the telephone. Telephone interviews present a number of challenges compared to face-to-face interviews; mostly, I experienced a difficulty in breaking the ice at the be-

gining of the interview and therefore probably started the interviews more abruptly, whereas the posing of questions and follow-up questions in a semi-structured manner proved less challenging once the interviewee had started. All interviews were conducted in Swedish. Except for the telephone interviews, all interviews took place in or near the office of the interviewee, with all that comes with it. Some showed the latest accounting reports that decorated the wall, some were interrupted by co-workers with questions that just could not wait, I came to sit in on an emergent meeting following an accident that had taken place on a work site in another country, I had the organisation of the physical work site explained to me, the plan for the soon-to-be-built complex proudly presented to me, etc. In essence, I appreciated the proximity to the interviewees' daily setting and the additional impressions that lingered with me after the interview was finished, because they usually provided further contextual richness. In order to capture this kind of "bonus material", and also to document my reflections about the process, I kept a research diary.

The interviews both resemble and differ from the interviews conducted in my licentiate study. In a similar vein, they were semi-structured, revolving around a few themes, yet with flexibility from both the interviewer's and the interviewee's side to talk about other themes that seemed relevant, and with a slightly emergent approach, meaning that some questions changed as I learnt more. First, I asked about the interviewee's role at CF and the history prior to that role. Second, I asked questions about tasks and decisions that they faced, and the information used to handle these. This was done both by letting the interviewee mention tasks and decisions, and by asking about tasks and decisions that I would expect based on how they described their role. The idea was that it would be easier for the interviewee to talk about their use of information in more specific and concrete situations rather than on the more general level (cf. Ackoff, 1967; Wetherbe, 1991), e.g. "prioritise among coming projects on the market", "allocate people among projects", "create an initial time schedule", or "choose subcontractors for the project". Here, I encouraged the interviewees to talk about any kind of information that they drew on to perform these tasks and decisions, i.e., not just formally produced information, since my ambition was to get an idea of the interplay between accounting information and other informational resources. I also asked the interviewee whether he/she experienced problems, or missed any kind of information in these situations. So far, the interviews resemble those in my licentiate study. Third, I posed questions about reports and information systems, how they were used (or not used), and whether they experienced any problems with them, both by letting the interviewee mention a few, and by asking about tools and reports that I knew existed at CF. This was not done in my licentiate study. These questions typically revolved around quarterly and monthly financial reports, the benchmarking tools, the

ERP system, the new Business Intelligence tool, and the safety and purchasing reporting. Not all of these were covered in every interview, for the interviewees differed in what accounting information tools they had at their disposal and the extent to which they used them. I usually ended the interview by asking whether the interviewee wanted to add anything that they thought might be of use in the change project. All in all, I strived to obtain a holistic view of the managers' information environments, in order to better understand managers' beliefs about accounting information in relation to other information, and how various pieces of information operate together (cf. Hall, 2010). Having said this, I do not claim to have captured a "complete" view (nor was that my intention), but by looking at a wider set of accounting information tools, against a number of managerial tasks and concerns, I believe that I have been able to notice things such as managers' wish to find relationships between different types of information, the relatively stronger belief in using accounting information for control than for decision-making, and the awareness of the costs of accounting information, to mention a few examples.

Approaching the interviewee by asking both about their work and their information use associated with this and about specific reports is similar to what McKinnon and Bruns (1992) did, and implied an increased focus on accounting information compared to my licentiate study. This increased focus, together with the project's explicit emphasis on management accounting, made me more comfortable using the label "management accounting" for my research area. The more pronounced focus on accounting information clearly generated other findings than the licentiate study. However, managers at CF also seemed a lot more focused on accounting information than most interviewees in my previous study. The results thus should not only be seen to reflect the chosen method of collecting empirical material, but also the context of the study.

Not only do the findings depend on the type of questions asked during the interviews, but I also adhere to the view that what comes out of an interview is the result of the interaction between researcher and interviewee in that particular situation (e.g. Alvesson, 2003). For example, the interview situation may be a platform for identity work (ibid.), implying that the interviewee takes the opportunity to construct and strengthen their favoured self-identity. Common to the lower-level managers in particular were expressions about how complex, action-filled and demanding their work was, how crucial their experience, feeling, and tacit knowledge were to manage this complexity, and the emphasis on their work as a life style – like that of circus performers. This is something that I perceive as part of an identity construction, although I believe that it could also be seen to reflect what Alvesson (2003) refers to as cultural scripts, such as company or industry stories, or

moral storytelling – a wish to present oneself in a positive light. The latter point also relates to what was discussed in the section above – the interview as an arena for political action. For example, some higher-level managers insisted on new information systems that would generate more accurate information, so that they could start basing their decisions on truths rather than on hearsay and guesses, a view that is likely to be perceived very positively by those responsible for the change project. In essence, I see the interview situation as something rather complex and ambiguous that emerges in the interaction between interviewer and interviewee, and not necessarily as something that reflects one truth. Having in mind the various ways to interpret an interview account, however, I believe that the interviews triggered interesting thoughts. For example, lower-level managers' frequent emphasis on their complex workload emerged as a theme important enough to be addressed in paper VI.

Observations, interaction, and documents

In parallel with the interviews, I attended as many project-related workshops and meetings that I could fit into my schedule. The workshops covered one product category at a time, and were aimed at inviting higher-level managers and staff to brainstorm around vital aspects of producing and selling their particular product, in order to identify relevant performance indicators. Each workshop was followed by a meeting where the change management team presented their suggestions for performance indicators to the participants. Other activities that the change management team undertook included field visits to construction sites and local offices, talking to the manager in charge about the management accounting dimension of his/her work. I attended six workshops, each lasting between three and six hours, and one follow-up meeting, lasting an hour and a half. I also accompanied the change management team on a field visit to a construction site, which lasted about one hour and a half. During all these occasions I took notes, and remained in the background. These occasions both overlapped with and broadened the scope of the interviews; managers' work was discussed with regards to both the information needed to perform that work, and performance indicators that reflected that work. Moreover, these occasions further foregrounded potential tensions and conflicting views of management accounting, which were particularly important in writing paper VI.

I also had the opportunity to use a desk in the open plan office space just outside the change management office. My presence varied; some weeks I sat there for several days, and some weeks not at all. Being there enabled continuous discussion with the change management team. I raised questions about things that I had heard during the interviews or workshops, e.g. com-

pany vocabulary and management accounting tools, and asked for their view of how the workshops proceeded. In addition to this rather quotidian interaction, I also had a number of more formal meetings with the change management team, e.g. start-up meetings to get acquainted with the project, follow-up meetings to address possible questions or problems, and a feedback session where I presented some initial findings from the interviews. I took notes in conjunction with all the formal meetings, and often in conjunction with the informal interaction.

Most of the above research activities took place during April 2011 and January 2012. In addition to the interviews and observations, I had access to a few internal documents, most notably a number of PowerPoint presentations used when describing the change project and when introducing each workshop, a report based on a questionnaire conducted among managers and staff at the outset of the project, and a few management manuals. Tables 2, 3 and 4, in Appendix 1, summarise the research activities and the empirical material.

Iterating between proximity and distance – a PhD student’s identity crisis

As can be seen in the above outline of how the case study unfolded, I was exposed to varying degrees of proximity to the study objects; my direct interaction with them varied, as well as my presence in the office. Researchers sometimes “go native”, or at least immerse themselves in the field for a long time (e.g. Ahrens, 1997; Preston, 1986), yet this study is not ethnography, nor is it a case of action research or the like: it is a case study, conducted during a rather limited period of time. Even so, looking back at my research diary, I can see that I sometimes got the feeling that I became one of them – and of being a consultant. One example was when I was asked whether I could have a member from the change management team sit in during an interview. He was about to conduct a number of interviews as part of the change project and needed some input. I agreed, but even though I found it interesting to hear his reactions on the interview (e.g. that he was positively surprised of how rewarding a less structured interview could be) and the questions that he added during the interview (e.g. about tools that I was not very familiar with), I felt like I was suddenly part of the change management team – both in their eyes and in the eyes of the interviewee. Another example was when interviewees and workshop participants asked for my view on management accounting issues, or asked (somewhat suspiciously) whether I would develop their management accounting systems. After such instances I preferred to stay away from the office for a couple of weeks in order to re-

gain some distance. That researchers present their insights to the studied organisation is not uncommon (e.g. Jørgensen & Messner, 2010; Van der Veecken & Wouters, 2002; Westelius, 2006) – in fact, from the people I know it is more common than the opposite – but I think that the fact that I gathered data in conjunction with a specific project may have strengthened these feelings.

Why this unease? Various kinds of academic-practitioner research collaborations can be seen, perhaps more often in other sciences, but also in management accounting (e.g. Jönsson & Solli, 1993). Furthermore, a number of scholars have pointed to an increasing gap between research and practice, encouraging the research community to bridge it through e.g. problem-driven research (Corley & Gioia, 2011) and coproduction of knowledge between researchers and practitioners (Van de Ven & Johnson, 2006). How is that different from what I have done? Considering our common interest in managers' engagement with accounting information it appears that we agree on a problem that is both theoretically and practically relevant. However, I believe that we view the problem on different levels. For example, having one of the change managers sit in on an interview made me realise that he wanted to ask more specific questions about information use and computer interfaces, with the ultimate goal of developing an appealing tool for information retrieval. As McKelvey (2006) suggests, practitioners have particularistic and time-bound interests, and producing relevant scientific knowledge on such grounds may be challenging. Furthermore, I have not generated any solutions to any problem; my report to the change management team provides a description of how managers at different levels work with accounting information together with their own suggestions for improvements. I have definitely taken the more traditional role as researcher in management accounting, yet with the proximity to the company I sometimes felt caught in-between, i.e., not a *completely* traditional researcher (although, as mentioned above, reporting one's findings to the studied organisation is commonplace) nor a consultant with a clever solution.

Making sense of it all

Making sense of what was going on at CF was a process that started already when entering the field and that probably still has not come to an end. As stated earlier, I aimed to capture a holistic view of managers' engagement with accounting information. I was inspired by a few broad themes, e.g. the interplay between written and verbal sources of information (Hall, 2010; Pitkänen & Lukka, 2011), and the relative qualities of accounting information compared to other types of information (Hall, 2010; McKinnon & Bruns, 1992; Van der Veecken & Wouters, 2002), i.e., theory as a sensitising

device (Klein & Myers, 1999) rather than as detailed preconceptions. As the process unfolded, I also tried to mobilise my own preconceptions as an interpretative repertoire (Alvesson & Kärreman, 2007). As mentioned earlier in this chapter, I kept a research diary, at which I looked back to recall any surprising encounters between the material and my preconceptions. The iterations between theoretical and personal conceptions and data leading to the emergence of the three papers are described below.

“Timely accounting information as affordance”

During the first workshop, a higher-level controller and a change manager expressed doubts regarding the value of real-time information, suggesting that it was more relevant to talk about right-time. This intrigued me: if it was more relevant to talk about right-time, what then was right, and to whom? The fact that timeliness has usually been considered an important, yet lacking feature in management accounting systems (e.g. McKinnon & Bruns, 1992), further strengthened my interest. Therefore, after the first workshop, I started to ask more explicit questions about timeliness-related aspects of information in the interviews. These questions were rather open, and not derived from any specific theoretical viewpoint. Later on, I did a literature review on timeliness, and found that it was one of the key constructs in contingency studies in management accounting, meaning that it was mainly treated on an aggregated level, either as a dependent or independent variable.

In line with Hall’s (2010) critique of organisational level studies in management accounting, I thereby saw an opportunity to unravel the notion of timeliness, and to pinpoint what it could mean to managers in more day-to-day terms. I investigated what types of questions the timeliness construct typically consisted of in previous, quantitative studies (e.g. Bouwens & Abernethy, 2000; Forza & Salvador, 2000), while simultaneously identifying managerial situations where the issue of timeliness appeared. Four types of (un)timeliness in the managers’ work emerged, and these in turn made me realise that integration, which is often highlighted as a key property of timely accounting information systems (e.g. Scapens & Jazayeri, 2003), was not sufficient. It appeared necessary to discuss accounting information systems as a more diverse set of material properties (cf. Leonardi & Barley, 2008). The data also indicated that technological solutions *per se* were insufficient to obtain timely accounting information: the managers talked about organisational requirements, and there seemed to be quite some variation between individual managers’ perceptions of timeliness. This made me turn to the theoretical lens of affordances (Zammuto, Griffith, Majchrzak, Dougherty & Faraj, 2007), used to analyse the socially constructed dimensions of information technology. That is how paper IV emerged.

“Control questions and the mental construction pace: Shapes of accounting”

This paper was to some extent inspired by previous studies on how managers are informed in their day-to-day work (McKinnon & Bruns, 1992; Preston, 1986; Van der Veecken & Wouters, 2002). After a number of interviews I felt that many managers were similar to those in Gullberg (2011) and previous studies, i.e., had rather informal means of becoming informed, sometimes by observing machines on the construction site. However, some were also very keen on the use of numbers, and financial follow-up stood out as an important event in these managers' work. In addition, there was the constant dialogue that seemed to take place between managers at different levels. Inspired by Ahrens and Chapman's (2007) work, I decided to analyse the material from a practice perspective (e.g. Feldman & Orlikowski, 2011; Schatzki, 2005). Practice theory, with its focus on recurring activities, shared understandings, and material things, seemed to offer a useful vocabulary to convey the mix of elements observed in the managers' approach to monitoring their business. Analysing the data in accordance with practice theory in turn made me more attentive to the ongoing production of organisational life (Feldman & Orlikowski, 2011), and I started to pay more attention to how some practices seemed to be reproduced. That is how paper V emerged.

“Professional accounting and the managerial profession: Insights from a construction firm”

Tensions between staff and operations managers became evident after some time in the field. Operations managers seemed to hold a view of staff people as neat and rigid people with little “real-life” connection, whereas staff seemed to be of the opinion that operations managers did not understand the value of routines, systems, and other supporting tools. This appeared to me a classic case of tensions between central and local values (Jönsson & Grönlund, 1988), or between different functional affiliations (Vaivio, 1999). However, there were more nuances than this, but I could not pinpoint exactly what. I started to simply categorise the data according to arguments “for” and “against” the use of accounting information in managerial work. These varying rationales for the use of accounting information made me turn to literature on enabling and coercive forms of control (e.g. Adler & Borys, 1996; Ahrens & Chapman, 2004; Jordan & Messner, 2012), which seemed to generate more nuanced accounts than mere dichotomies. This brought to the fore a diversity of interpretations of management accounting, the managerial role and managers' wider organisational outlook. That is how paper VI emerged.

The process of making sense of what was going on at CF is thus the result of intriguing encounters in the field, as well as of inspiration from the literature. Theory has always been there, but in various shapes; first as a broad guide and then used to shape the story of each paper in more detail. Also and importantly, I cannot stress enough how important writing was for advancing the cognitive process (cf. Alvesson & Kärreman, 2007). However, in line with Hall's (2010) suggestion to approach accounting information as it appears in managers' work rather than imposing a certain role or use of it (see also Chua, 1986), I also went through the data in a more open-ended manner, in order to stay sensitive to the managers' work and their understandings of it. This meant letting the data speak, and I manually assigned codes to managers' doings, problems, and understandings that seemed to guide their doings. Hence, I went through the material several times, both to gain a general understanding of what was "going on" and to identify possible topics for the papers, and to delve deeper within the scope of each paper.

Now, let me look back on the past once again.

Did I learn from the past?

Returning to the lessons learned from my licentiate study, did I manage to benefit from these in my doctoral study?

My wish to conduct a larger case study involving multiple methods has been fulfilled. This brought several benefits, such as an increased greater contextual understanding that reduced the need to reinvent the wheel on each occasion, and enabled me to dig deeper into matters that had come up previously. Moreover, attending workshops and meetings gave me insight into the interaction between different parties in the organisation, spontaneous reactions to suggestions presented during workshops and meetings, and other interpersonal aspects of the topic. Likewise, presenting my initial findings to the change management team meant a greater comprehension of their views. In line with other interpretative researchers (e.g. Ahrens & Chapman, 2006; Silverman, 2006), I do not see multiple methods primarily as a means to validate one objective version of the world, but rather as a way of capturing several nuances, or findings interesting tensions. When initiating the case study I was ambitious, and planned also to undertake a small questionnaire and perhaps some direct observation of managers' daily work if possible. As the case study unfolded and as I became more and more eager to start writing, I dropped these ambitions. What they would have meant to my study is of course hard to say, but at least direct observation of people's work is sometimes used in previous studies on managers' situated use of accounting information (e.g. Ahrens & Chapman, 2007; Preston, 1986; Skaerbaek &

Tryggestad, 2010) and in retrospect, I would have liked to include some of it in this study, e.g. observations of the quarterly follow-up meetings that are referred to in paper V.

Regarding my ambition to find a theoretical home and to put my foot down I have also taken a step forward. In contrast to Gullberg (2011), this dissertation volume takes its point of departure in the management accounting literature. Also, as described in the theory chapter, I have come to understand the different purposes for which theory may be used. With my feet firmly rooted in the management accounting field, with a selected number of key references (e.g. Ahrens & Chapman, 2004; McKinnon & Bruns, 1992; Preston, 1986; van der Veecken and Wouters, 2002), I have the courage to explore various theoretical fields that help me to highlight and/or explain certain things in my material. I still would not say that I am highly focused, however; the three papers from the doctoral study treat three distinct aspects of managers' engagement with accounting information. When searching for literature for paper IV, I realised that there were people who had spent their entire doctoral study investigating the notion of timeliness (Nilsson, 1996). Apparently I am not one of them. But I do think that I have moved from the supermarket of theories, to a place with a more limited selection – perhaps a grocery store?

Concluding discussion

I will now revisit the licentiate dissertation and the three later papers singly, then bring together the insights from the different parts. To recapitulate,

The aim of this dissertation is to identify roles of accounting information in managerial work in order to better understand the link between managerial work and management accounting systems.

Revisiting the pieces of research

The licentiate dissertation – Puzzle or mosaic? On managerial information patterns

With the aim “to increase the understanding of the process of informing and of being informed in managerial roles”, the licentiate dissertation touches upon a wide range of aspects, among which those most relevant to the aim of this second dissertation volume will be highlighted.

In essence, the licentiate dissertation takes its point of departure in what managers do in their work, and the various informational resources they rely on to perform that work. These range from periodic financial reports, customer surveys, and operational reports of man-hours spent and quality deviations, to qualitative and more subtle types of information such as project status, suggestions regarding improvement of the operations, and the subordinates’ well-being. Sometimes these pieces of information take the form of visual and auditory cues, e.g. through overhearing something in the open-plan office space. Overall, the findings of Gullberg (2011) display similarities with McKinnon and Bruns’ (1992) “information mosaic”, in the sense that managers rely on a multitude of informational resources, of which accounting information is only one part. Contrary to McKinnon and Bruns (1992), Preston (1986) and Van der Veecken and Wouters (2002), who build on manufacturing and construction work settings, Gullberg (2011) mainly involves managers in various labour-intensive service settings, many of which are first-tier managers. This could explain why so many of them to a large extent rely on soft and subtle signals in performing their work. This

should be particularly likely in knowledge-intensive settings, which may not easily lend themselves to quantitative indicators, at least not on the operational level. More routinized and regulated operations such as call-taking and home-care service, on the other hand, may generate more opportunities to manage by numbers, seen in e.g. quality reports and planning and evaluations based on incoming calls and call times. Although managers in previous studies (e.g. McKinnon & Bruns, 1992) also rely on observations and informal accounts, they seem to do so partly because of shortcomings of the management accounting systems. Common to the managers in Gullberg (2011), is an espoused belief in being present and visible as part of their managerial role, something which influences their information patterns. Paying attention to information such as the subordinates' workload, career plan, and wellbeing on both the professional and the private level is considered vital in fulfilling the role of a good manager. Furthermore, informing subordinates about what is going on in the organisation is also perceived as important. In particular, verbal interaction is emphasised as an important channel for exchanging information with subordinates, thereby reducing social distance and creating a culture of openness and trust.

In sum, the engagement with this mix of informational resources, connected to a number of both distinct and overlapping activities, is analytically organised in a four-quadrant square (see Figure 1) with the dimensions short- to long-term management control practices on the vertical axis, and degree of formalisation of information on the horizontal axis. Short-term management control practices involve the more or less periodic, information-based ways of following up the business, whereas long-term management control practices include more slowly evolving elements such as values, symbols and culture (cf. "Management control as package", Malmi & Brown, 2008). The degree of formalisation of information ranges from computerised reports to verbal interaction. Each quadrant represents a certain management style. The lower left, management by facts, largely reflects the idea of management accounting as score-keeping and problem-solving (e.g. Simon et al., 1954). The lower right, management by walking around, illustrates how managers obtain a fairly immediate overview of the business by being close to it and by talking to people (e.g. McKinnon & Bruns, 1992). The upper left, development/learning-oriented management reflects the opportunity to learn and develop new habits by using structured information over time, e.g. attention-directing (e.g. Simon et al., 1954). The upper right, relation-oriented management, illustrates managers' wish to build and sustain relationships with subordinates, e.g. through exchanging information that is not strictly task-related (e.g. Kotter, 1982).

Managerial information patterns are identified that cut across several quadrants. To mention but a few of them, informal personal meetings are useful

for better understanding the meaning of a formal report (arrow 5), informal means of obtaining an overview of the work in the department also serves a more long-term purpose of tearing down hierarchical structures and creating a culture of openness (arrows 2), or informal means of being informed is deemed important in order to be a good manager, although formal information is also necessary for the purpose of keeping the subordinates continuously updated and to be an informative and competent manager (arrows 4).

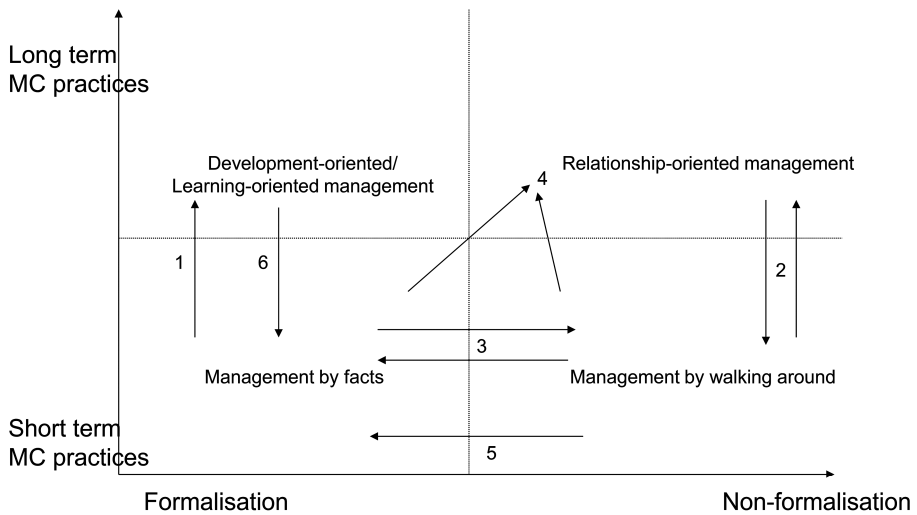


Figure 1. Management control, time horizon and degree of formalisation (Gullberg, 2011)

Gullberg (2011) thus illustrates some common managerial concerns, how they are bound up with the use of information, and the role of accounting information therein. Managers are likely to move across all four squares within the scope of their work, yet the managers in Gullberg tend towards the right-hand side of the figure. Accounting information is clearly complemented by other informational resources, and seems intertwined with more general management issues such as communication and culture.

Paper IV – “Timely accounting information as affordance”

Paper IV addresses a traditional accounting information quality that has long been treated more or less as a black box. The aim of the paper is to develop a vocabulary for discussing how timely accounting information can be afforded in managers’ work, in order to articulate and contextualise the affordances and constraints of accounting information systems. Timeliness is reconceptualised as four distinct types: data entry timeliness, retrieval timeliness, at-face-value timeliness and frame-of-reference timeliness.

The reconceptualisation allows for a more detailed understanding of how technological solutions, e.g. ERP systems - through their specific material properties – contribute to managers’ experience of timely accounting information. For example, the common ambition of system integration may need to be considered along with other properties such as a mobile data entry interface, and graphical rather than numerical displays of output data. Moreover, timeliness is looked upon as an affordance (e.g. Leonardi, 2011; Zamamoto et al., 2007), thus implying that technical properties may not be sufficient to experience timely accounting information, but that organisational and human aspects also need to be taken into account, e.g. the design of performance measures, organisational directives, and the balance between administrative and production skills among lower-level managers. The reconceptualisation furthermore allows for identifying trade-offs between the various types, something which indicates that managers are rather well aware of the costs of timely accounting information. All in all, paper IV contributes to previous research (e.g. Bouwens & Abernethy, 2000; McKinnon & Bruns, 1992; Preston, 1986; Scapens & Jazayeri, 2003) by opening the black box of timeliness, and by clarifying the role of accounting information systems in this.

In contrast to Gullberg (2011) and the other papers, paper IV foregrounds a specific accounting information quality, and the material and social resources involved in affording it. The purposes and ambitions underlying managers’ wish for timeliness are somewhat downplayed, in favour of a more in-depth discussion of the material properties of the accounting information systems involved and their roles in managers’ perceptions of timeliness.

Paper V – “Control questions and the mental construction pace: Shapes of accounting”

Paper V focuses on monitoring aspects of managers’ use of accounting information, i.e., essentially score-keeping (Simon et al., 1954). The aim of the paper is to investigate how and in what shapes managers mobilise accounting information in monitoring their financial performance. The paper pictures managers’ efforts to monitor their area of responsibility as a set of practices (e.g. Feldman & Orlikowski, 2011; Schatzki, 2005) where varying emphasis is placed on accounting information vis-à-vis other informational resources, as a result of different understandings of how to manage one’s work.

The paper highlights various understandings of monitoring and the roles of accounting information in these, including defining and encouraging a good day’s work through accounting information, being “out there” on the con-

struction site to control one's work against the mental frame of reference based on accounting information, creating a culture of proactive information sharing that pre-empts the periodic accounting reports, posing control questions during quarterly follow-up meetings to challenge the accounting information presented, and reinforcing the message between the quarterly meetings by letting the subordinates know that they are being watched through benchmarking accounting reports visible to everyone. These different monitoring practices are suggested to reflect shared beliefs and ideals of monitoring and managing, as much as explicit efforts to cover up flaws in the formally produced accounting information as some of the previous studies frame it (e.g. McKinnon & Bruns, 1992; Mendoza & Bescos, 2001). Moreover, a belief in complementing information systems with interpersonal communication for the purpose of control is found. Furthermore, these practices are suggested to be reproduced over time. In sum, paper V contributes to previous literature by illustrating how accounting information is mobilised in accordance with understandings that may be reproduced over time, and by pronouncing the interpersonal dimension of monitoring that seems to reinforce rather than blur the distinction between providers and retrievers of information (e.g. Scapens & Jazayeri, 2003).

Like Gullberg (2011), paper V illustrates managers' engagement with accounting information as a pattern of interrelated activities, where accounting information takes on different roles at different times. Paper V illustrates and elaborates on some of the ideas in Figure 1, most notably how both formal and informal sources are used to control operations (arrows 3), how informal sources are used to discuss the content of formal sources (arrow 5) and how informal sources are believed to create trust and encourage information-sharing (arrows 2). Paper V, however, downplays the distinction between formal and informal: the reason for doing so is that the formal-informal divide is not entirely clear-cut – e.g. superiors and subordinates may perceive the same source of information as either informal or formal (Pitkänen & Lukka, 2011).

Paper VI – “Professional accounting and the managerial profession: Diversity and dissent in a construction firm”

Paper VI includes not only line managers, but also various staff-related people, and sheds light upon and juxtaposes various reasons given for and against an increasingly “professional” use of accounting information. The aim of the paper is to identify views on accounting information in managers' work and the underpinnings of these views, in order to better understand the basis for potential conflict and reconciliation in connection with management accounting change. The paper goes beyond the more direct uses of

accounting information for specific decision-making and control situations, and discusses how the engagement with accounting information is intertwined with the professional role of construction managers, and their wider organisational outlook.

A more “professional” use of accounting information is subject to divergent interpretations. Whereas some, in particular the change management team, believe in a more solid basis for decision-making, and key performance indicators that will encourage the adherence to working methods, others argue that the uncertainty inherent in construction work requires flexibility, and makes decision-support redundant. Furthermore, even though the suggested key performance indicators are developed based on the managers’ ideas of what is indeed key in their business, some disapprove of them because their complex role cannot be subjected to quantification. Simultaneously, producing and visualising accounting information for control purposes is considered important to many managers, because of the results-oriented culture. Few managers display only a single firm standpoint. For example, there are those who vacillate between not needing accounting information systems for parts of their work, while at the same time arguing for its value for the greater good, or arguing for their own need of a better system while realising that it could be an obstacle to the work of their subordinates. Paper VI thereby contributes to nuance common dichotomies in previous studies, such as that different accounting logics pertain to functional affiliation (e.g. Cuganesan, 2008; Dent, 1991; Vaivio, 1999) or to central versus local views (e.g. Jönsson & Grönlund, 1988). It furthermore suggests that the enabling-coercive framework (Adler & Borys, 1996; Ahrens & Chapman, 2004; Dambrin & Robson, 2011) is not only a matter of transparency of the management accounting systems, but also of social commitment to other people.

Compared to Gullberg (2011) and the other papers, paper VI incorporates more perspectives on managers’ engagement with accounting information. The paper extends and elaborates on the findings of Gullberg (2011) regarding the idea of being a good manager, and underlines that accounting information is not neutral.

Assembling the pieces of research – roles of accounting information in managerial work

As seen in the above section, the three more recent papers both corroborate and extend the findings of the licentiate study. The pieces of research have largely foregrounded the purposes behind managers’ engagement (and non-engagement) with accounting information and its relation to the organisa-

tional and industrial setting, e.g. the wish to motivate subordinates and be a good manager (Gullberg, 2011; Paper V), the difficulties associated with budget follow-up on construction sites (Paper IV), the interest in measuring results (Paper VI), and the belief in attention-directing interaction (Paper V). Less attention has been devoted to the qualities that managers attribute to accounting information, i.e., what makes accounting information meaningful. For example, when managers engage with accounting information to motivate their co-workers, what is it that they believe makes that information appropriate to use? And when managers choose not to rely on accounting information to plan their next steps on the market, what is that they think of accounting information that makes them ignore it? Informational value has been suggested to be a key explanation as to whether managers use accounting information (Van der Veeken & Wouters, 2002), but what gives information informational value? If we are to understand the roles of accounting information vis-à-vis other informational resources in managers' work (Hall, 2010; see also Pitkänen & Lukka, 2011), these questions warrant further attention. In this final part of the concluding discussion, I will elaborate on the roles of accounting information vis-à-vis other informational resources in managers' work.

Accounting information as representation – what is happening?

Managers typically want to know what is happening within their area of responsibility, and even beyond. Naturally, this entails a myriad of things, and depends on the operational context of the manager. A manager on a construction site may want to know how many meters of asphalt have been paved during the past week, or whether the co-workers are adhering to the safety procedures, whereas a manager in another context may want to know whether a certain group of customers generates as little money as the rumours in the company say, whether a team of subordinates gets along well, or whether the competitors are currently targeting the same customers as the company is.

Both this study and previous studies have shown that managers are quite able to find out what is happening through specific, non-aggregated and even physical signals, e.g. crammed inventories in a manufacturing firm and gossip about a main competitor having been seen together with the company's clients (McKinnon & Bruns, 1992), overloaded work desks in a government agency and overhearing of subordinates' service skills in a call centre (Gullberg, 2011), and idle excavators on the construction site and informal reports from subordinates about unexpected problems encountered in the ground (Paper V). The informational value of these signals may explain why so many managers underline the importance of being close to the operations, although there is also a social dimension to it. Paper V illustrates how man-

agers take pride in “being out there” and up-to-date with the operations, and thereby manage to extract signals about production progress, injuries, and people’s wellbeing. Managers in Gullberg (2011) display similar attitudes (see also Lowe & Koh, 2007; McKinnon & Bruns, 1992; Preston, 1986); maintaining proximity to the operations is considered vital, and relying on accounting information as a first-hand source of information implies that the manager is detached, and not fully trusted by subordinates. However, specific, non-aggregated signals do have their limitations. Not only do both higher- and lower-level managers often complain about spending too little time “out there” (Gullberg, 2011; Paper V), but some signals are not easily captured by the naked eye, nor are they easy to formulate in concrete terms. Here, accounting information has the potential to act as useful representations, i.e., rendering activities, people, material, and sentiments more comprehensible by expressing them in numbers.

Such a capacity has been suggested to be more significant when operational activities are complex (Hall, 2010; Van der Veeke & Wouters, 2002), which seems to hold true also in this study. Because of the difficulty associated with reporting complex operational activities on a construction site, and because of the lack of appropriate data entry interfaces, the representational capacity is not always easily realised; lower-level managers sometimes struggle to find out the productivity in the projects (paper IV; paper V). The capacity to represent an underlying “reality” furthermore depends on the number of events in the operations. For example, higher-level managers at CF seem well aware of the historical profitability of groups of projects or customers, which is not the case for the managers in McKinnon and Bruns (1992). Compared to many manufacturing settings, the large-scale nature of projects at CF probably allows for a more manageable number of events that can be mentally aggregated. (And in fact, over two decades after McKinnon and Bruns’ study, this kind of accounting information has just recently been made easily available to managers at CF.) They may not know the exact profitability per product or customer group, but they have a rather distinct feel of what types of projects are more profitable than others. The fact that many managers spend large parts of their careers at CF should also explain the transparency inherent in historical profitability. This simultaneously reveals a potential risk, and demonstrates the possible role of accounting information as structural capital. The importance of the representational capacities of accounting information hence not only pertains to the nature of the underlying “reality”, but also to the manager’s knowledge, and may, in the case of historical representations, be particularly important. On the other hand, as will be argued later in this chapter, the capacity of accounting information to transcend distances in time and space is not straightforward. In addition to informing managers about their operations when they are not easily understood, the role as representation takes on importance vis-à-vis

other informational resources when managers want to communicate with and motivate others. The most obvious examples are the various occasions for follow-up that occur in most organisations, but communication by numerical representations is also seen in lower-level managers' efforts to define a good day's work in terms of productivity (Paper V), and in higher-level managers' sales communication where customers sometimes want to know the expected cost per square metre.

As exemplified above, the type of accounting information used as representation varies, depending on what constitutes a manager's operational context. Many representations of what is happening pertain to non-monetary counts rather than money, e.g., number of people, hours, metres, number of injuries, and number of safety rounds accomplished. The example above of historical profitability does however illustrate a case where money constitutes the operational context. Also and importantly, many answers to "what is happening?" are rarely, if ever, expressed in numbers but remain narratives, e.g. oral weekly reports of how work is proceeding (Gullberg, 2011), or speculations about what the competitors are doing or what kind of projects that potential customers are about to undertake. In particular, as McKinnon and Bruns (1992) suggest, managers working with sales and marketing are informed in a highly ad hoc manner. This is not surprising, considering that higher-level managers at CF, at least those working with private-sector customers, strive to pre-empt any formal channels for market information by contacting presumptive customers.

In sum, one role of accounting information in managerial work is that of representation of status and trends in operations. This role is particularly important vis-à-vis the role of other informational resources when managers want to know what is happening in complex and eventful operations, or when managers are physically and socially distant from operations. It is also important when motivating and communicating with others. This role may be hindered by e.g. inappropriate data entry interfaces, or lack of feedback between projects over time.

Accounting information as translation – what are the implications of what is happening?

In addition to knowing what is happening, managers sometimes also want to understand the implications of what is happening. For example, what are the monetary costs of this week's excavations and asphalt paving on the construction site? Or, what comes out of adhering to the safety procedures – does it decrease incident rates? Does it make the co-workers more satisfied? Does it lower productivity?

Just like “what is going on”, implications are sometimes understood by observing and listening. For example, an idle excavator on a construction site may not only represent the fact that no one is currently using the excavator, but may simultaneously translate into a mental note on a drop in the productivity/cost ratio, at least when operations are not overly complex. Other implications may be more difficult to conceive of, e.g. what impact do safety procedures have on productivity? Here, accounting information has the potential to serve as a translator, i.e., express physical activities or quantitative indicators in other, quantitative terms.

This seems to be done largely for motivational purposes, both for oneself and for others. Paper V illustrates how talk about profit margin is used to motivate people in a project to do what they ought to. However, as indicated above, not everything is easily translated. Whereas the relationship between production and costs is probably relatively clearly outlined in most management accounting systems, the relationship between other parts is not as straightforward. This is seen in paper VI, where managers pay scant attention to, and even disapprove of using indicators whose effects are unclear. The *cause-effect* relationships between various measures that are said to characterise the Balanced Scorecard (e.g. Kaplan & Norton, 1996) are not always easily attained (Ittner & Larcker, 2003), and have been suggested to be at best *logical* (Nørreklit, 2000). At CF, managers sometimes fail to see even logical relationships, e.g. between measures such as internal procurement and compliance with safety routines, on the one hand, and their outcome, on the other hand. Contrary to the sales reps in Dambrin and Robson (2011) and various organisational members in Briers and Chua (2001), who accept accounting indicators in spite of their unclear relationships with their work, managers at CF want to uncover relationships between an action taken and an interesting result. While Briers and Chua argue that a lack of transparency is unproblematic because the users simply trust the indicators, Dambrin and Robson suggest that the lack of transparency is accepted as a result of the very opacity, but also because the sales reps are evaluated according to complementary indicators, and because their professional identity as medical informants distances them from sales indicators. The longstanding decentralisation at CF is a possible explanation why transparency is considered important; adhering to procedures and measures because someone says you should may be a rather weak argument in such a setting, and requires more transparency (cf. Adler & Borys, 1996).

While Hall (2010) hypothesises that the discovery of relationships should be based on managers’ own experience rather than on formal models, in order not to disturb intuition, managers at CF believe in quantifying and testing the logic of chains of events in their work. Not least, they believe in identifying

and quantifying logics that could serve as incentives, and to recognise good performance, e.g. translating internal procurement to profit margins, and customer visits to revenues. Financial information stands out as the ultimate language at CF, not necessarily because it bridges differences between functions and cultures (cf. Hall, 2010) – CF is homogeneous in that regard – but more likely because financial results have long been the *raison d'être* of the projects, even though strategic issues are increasingly recognised. Considering its longstanding status in internal reporting in general, financial information is probably a common language in many organisations. Examples are seen in Gullberg (2011), where managers use the financial language (although words, not numbers) to formulate arguments related to production. A somewhat different example is the government agency studied in Gullberg (2011), where organisational members attempt to formulate the impact of their operations in terms of various environmental indicators. The interest in translating matters into environmental indicators is probably the result of both governmental influence and the mind-set of the employees, many of whom seem to have a genuine interest in questions related to the environment. Nevertheless, the example of the government agency indicates that the ultimate language in which to express matters may differ among settings, probably both across and within organisations. This concurs with Mouritsen, Hansen and Hansen's (2009) conclusion that accounting calculations do not necessarily reflect the object that is to be managed, but create a context for it to happen.

In sum, one role of accounting information in managerial work is that of translation, e.g. between different types of quantitative indicators, or between a physical activity and a result. This role is important in expressing the implications of what is happening in terms that people recognise and that serve to motivate them. What is recognisable and motivating varies between settings and depends on what is considered important to accomplish; even though financial information is probably well established in most organisations as a standard of evaluation, it cannot be taken for granted as the primary language in all situations. The role as translation could also be helpful in more open-mindedly exploring the operations, yet this does not seem to be realised at the time of the study, neither at CF nor among the managers in Gullberg (2011). The role as translation may however be difficult to accomplish when evidence of logical relationships between various parts of the operations is missing.

Accounting information as key – why is this happening?

Sometimes managers need to understand what lies behind a representation or translation. For example, they may want to know what expenses have incurred a huge cost, what expectations lie behind a financial forecast, or what

events underlie a set of safety indicators. Here, accounting information could take the role as key.

To some extent, understanding why is achieved by drilling down in the accounting information system, e.g. seen in Gullberg (2011), where explanation is sometimes sought down at the invoice level. However, drilling down only explains things to some extent, and questions to the person behind are not uncommon (Gullberg, 2011; Paper V).

Firstly, representations and translations are not neutral, but require an understanding of how they were calculated and defined. This may result from a lack of common definitions and methods in the management accounting system, but also from a person's skills and intentions. In the government agency in Gullberg (2011), there is a significant spread in people's ability to perform financial calculations and analyses. This is to some extent true also at CF, although here, there is also a lack of consistent methods. Furthermore, as illustrated in paper V, numbers sometimes build on guesses and estimates made in the face of high uncertainty, which can give managers reason to doubt both the skills and the honesty of the person behind the numbers. Regardless of the reason, these situations call for more than accounting information to arrive at an explanation why something is happening (or is expected to happen). It is reasonable to believe that this is more commonplace in situations of score-keeping than in situations of problem-solving, because more is at stake in the former.

Secondly, representations and translations are incomplete, and may require an accompanying narrative (e.g. Jordan & Messner, 2012). Even when an explanation is sought at the invoice level, it is considered necessary to talk to the people behind the transaction in order to understand how they are working, and how their work influences a certain cost (Gullberg, 2011). Likewise, safety is reported both singly and in consolidation at CF, with the intention of spreading awareness across production sites. Here, it appears that the single reports are appreciated by lower-level managers because of their sufficient detail; they help to initiate discussions with the subordinates, and pinpoint parallels between an incident occurred and their own work in a way that representations could not do. Another example is the type of accounting information that is intended to transcend time and space, e.g. historical profitability related to groups of products and customers. That projects of type X are highly profitable is not always taken at face value; managers at CF want to know who was involved, what the contract looked like, and what the relationship with the customer was like. Understanding why then builds on words and specific experiences, rather than on numbers. Reliance on interpersonal communication is commonplace in the construction industry, and has been explained by the temporary nature of projects, making managers

reluctant to document information (Styhre, 2008). This study indicates that the temporary nature of construction work also conditions managers' beliefs in accounting information in some situations, thus making inscriptions less stable and encumbering "action at a distance" (Robson, 1992). When accounting information loses stability, it needs to be stabilised by a narrative.

In sum, one role of accounting information in managerial work is that of key, i.e., elucidating what lies behind a representation or translation. This role may to some extent be enabled by drill-down functionality in the accounting information system. The role of accounting information as key has some resemblance with the role of "answer machine" (Burchell et al., 1980) insofar as it concerns straightforward answers to straightforward questions; however, the role as key concerns a quality vis-à-vis other informational resources. The role as key is not very significant in this study but is typically supplemented by narratives about assumptions and conditions that cannot easily be represented by numbers and that are needed to translate numbers into action. Such complementary use is possibly more prevalent in a project-based organisation, or in other settings that house a larger variety of locally contingent conditions and working methods.

Accounting information as perspective – how can we reconsider what is happening?

Regardless of whether a piece of information is well understood *per se*, managers may want to look upon it from some perspective, in order to evaluate its meaning and decide on an appropriate course of action. For example, how good is the profit margin that we achieved? Our clients demand more of these services, should we go ahead with it? How much of a problem is this delay in production? The competitors seem to be tendering for the same project as we are; should we adjust our pricing accordingly? Here, accounting information could take the role as perspective, i.e., to shed additional light upon what is happening.

Firstly, there is the perspective that is common in situations of score-keeping, i.e., comparing a result with what was planned or forecasted, or with results of other units or people. Interestingly, this role is both powerful and weak. Not least, managers at CF display a firm belief in holding themselves and their subordinates accountable through the use of "yardsticks". Even though the fairness of the benchmarking is not uncontested, managers at CF seem to extract additional informational value by viewing their results in light of others' results. On the other hand, because of the difficulty in creating sufficiently detailed budgets at the outset of a project, comparing one's result with what was initially planned is not always considered informative

(Paper IV). When accounting information serves as perspective, it may not only inform managers of how well or badly they are doing, but may also spark curiosity about what they could do differently, e.g. what is the secret behind the great results of my fellow regional manager, or what can we learn from this deviation from target? This, in turn, requires a step back, and accounting information may then take on the role as key, if not substituted by a narrative. Interestingly, at CF, benchmarking rarely appears to result in learning between individuals. Top management uses the benchmarking to highlight examples to learn from, whereas line managers seem to prefer to learn from people they know rather than from those with the highest benchmarking scores. This may be explained by the instability inherent in accounting information generated in unfamiliar contexts, as was discussed in the previous section. What is also interesting is how powerful the perspective role is in cases of negative deviation, whereas a lack of deviation rarely results in any further investigation. In summary, this type of perspective serves to judge whether what is happening is better or worse.

Secondly, there is the perspective that sheds light upon what is happening without necessarily indicating whether it is better or worse. In a previous subsection, I discussed the capacity of accounting information to act as a translator between different types of indicators, i.e., informing managers of how an effort translates into something interesting and desirable. Different types of indicators may, however, also be contradictory. At the government agency in Gullberg (2011), indicators on greenhouse emissions sharply deteriorate when one of the units takes on many assignments, because their work requires extensive travel by car. Similarly, managers at CF experience conflicting demands imposed by the various indicators on e.g. safety, customer satisfaction, and financial performance (Paper VI). Balanced scorecards and other strategic accounting tools can contribute to the role of accounting information as perspective by making conflicting demands and trade-offs more explicit. Accounting information may hence cause as much confusion as clarification, and will therefore need to be complemented by discussions so as to reduce ambiguity (cf. Burchell et al., 1980; Daft & Lengel, 1986; Tengblad, 2002; Weick, 1995), which is often seen in this study. Previous literature suggests that managers assemble various pieces of information in order to *corroborate* them (e.g. McKinnon & Bruns, 1992); yet, in its role as perspective, accounting information is not necessarily aimed at arriving at a single “truth”, but also at challenging it and possibly establishing one or several new “truths”. This role has probably increased significantly with the emergence of various strategic accounting tools over the past couple of decades. However, tensions may well arise from different monetary indicators, as shown in Mouritsen et al. (2009) where sales performance and direct costs cast innovation practices in different lights.

That more information does not necessarily reduce uncertainty but may instead increase ambiguity may explain why managers do not always bother to map aspects that they know are of significance. For example, managers at CF talk about the importance of understanding the fierceness of the competition when tendering for a project, yet it is described as an “inexact science” based on half-hearted efforts to talk to “someone who knows someone”, and they contend that they must have confidence in themselves when pricing a tender, rather than looking at others. This could of course be due to the fact that such information is not easily captured in the first place; perhaps they would rely more on it if it was readily available. Yet, the idea of having confidence says something about the limits they experience with quantitative indicators. Managers in Gullberg (2011) point to the importance of relying on both quantitative and qualitative indicators when evaluating subordinates’ performance. There seems to be a certain scepticism towards fixation on numbers; accounting information may hence be perceived as overwhelming, and not necessarily a step forward. As Jørgensen and Messner (2010) conclude in their study of strategic priorities in new product development practices, conflict may be avoided by not translating the various strategic priorities into numbers. Some researchers do suggest however that contradictions caused by accounting information may be a fertile ground for discussions (Chenhall, Hall & Smith, 2013; Funck, 2007), or for unlearning mental models (Hedberg & Jönsson, 1978), so the perspective role of accounting information vis-à-vis other informational resources probably depends on how ready an organisation is to face ambiguity, and what resources there are to deal with it.

In sum, one role of accounting information in managerial work is that of perspective, i.e., evaluating and giving further meaning to what is happening. The role is particularly significant when measuring what is happening against defined targets and standards. The role also includes the establishment of parallel “truths” that might be overwhelming and confusing, e.g. through more contemporary accounting tools such as scorecards. These may however also lead to sense-making dialogue about priorities.

Table 1. Roles of accounting information in managerial work

Role of accounting information	Managerial issue	Importance vis-à-vis other informational resources	Significant MAS characteristics
Representation	What is happening?	Increases when operations are complex and eventful, when a manager is physically or socially distant from operations, and when conveying a message to others	Interfaces and routines for data entry, Retrieval
Translation	What are the implications of what is happening?	Increases when logical relationships between distinct parts of the operations are less evident to managers, and when motivating others	Cross-analysis functionality across both monetary and non-monetary indicators
Key	Why is this happening?	Increases when definitions and assumptions are clear, and when situations are recurrent	Drill-down functionality, common definitions and assumptions
Perspective	How can we reconsider what is happening?	Possibly increases when priorities and standards are clear, yet may still be important as a basis for discussions about priorities	Both monetary and non-monetary indicators, Comparative overviews

Chapter summary

In the beginning of this dissertation volume I pointed to the necessity of studying managers' engagement with accounting information in the context of managerial work in order to move beyond the more aggregated accounts that are still common in the management accounting literature. I furthermore brought up the development of management information technologies, and how limited our knowledge is with regards to how these come into play in managers' engagement with accounting information. Based on three papers and on my licentiate dissertation, I have discussed a number of roles that accounting information takes in managerial work depending on what kind of questions a manager faces, on the other informational resources in managers'

work, and the characteristics of the management accounting systems. Table 1 summarises the discussion.

From this follows that technological, organisational and managerial aspects all contribute to make accounting information a meaningful (and less meaningful) resource in managerial work. Meaningful here largely reflects the capacity to inform managers and other people that a manager may want to influence or have a dialogue with. It is important to remember however that being informed by accounting information is not always a virtue in managers' work. Social and symbolical aspects are also at play in the (non-)engagement with accounting information, e.g. the importance of being "out there" to appear knowledgeable, and the attention-directing value in exchanging accounting information interpersonally. Yet, by focusing on the processes of informing, I have sharpened our understanding of the seemingly disorderly information mosaic (McKinnon & Bruns, 1992), without denying that various pieces of information intermingle in managers' work in a far from ordered manner. While Pitkänen and Lukka (2011) suggest three dimensions along which formal and informal information may intermingle: source, time and rule, the above discussion focuses on what makes different types of information meaningful. Of course one could argue that accounting information is always a representation (e.g. Robson, 1992), or translation (e.g. Hall, 2010), of some underlying "reality", so why four roles? My idea is that these four roles highlight the capacity of accounting information to both aggregate and disaggregate, or even fragmentise "reality", and also to translate between different types of accounting information. It is more than the unifying language that some have suggested (Hall, 2010; Van der Veeken & Wouters, 2002). It depends on what "reality" a manager departs from when engaging with accounting information: the non-numerical or the numerical. Both "realities" are likely to exist in most managers' work, and accounting information could serve both to translate and to provide a context to other pieces of information. The four roles also enable us to understand the limits of accounting information. Furthermore, the four roles show that different issues in managerial work and in management accounting systems are at play in each of the roles.

By foregrounding the translational and contextualising processes that make accounting information meaningful, these roles complement extant roles in the management accounting literature such as score-keeping, attention-directing and problem-solving (Simon et al., 1954), answer machine, learning machine, ammunition machine and rationalisation machine (Burchell et al. 1980), or diagnostic and interactive (Simons, 1995) (see Henri, 2006 for an overview), as well as more colloquially termed roles such as planning, motivating and coordinating (see Kihn, 2011 for an overview). Most of the extant roles mirror the larger purposes that managers want or are expected to

fulfil by engaging with accounting information. Burchell et al.'s (1980) machine analogy also explains how some conditions, i.e., the degree of uncertainty about means and ends, give accounting information different roles. However, extant roles say little about the qualities of accounting information that allow managers to fulfil these purposes, and to what extent these qualities do so.

Moreover, the interplay between accounting information and other informational resources indicates that it is difficult to isolate and pinpoint managers' engagement with accounting information. Accounting information continuously shifts between the foreground and the background of managers' work, taking on not only an immediately informing role in a well-defined situation, but also a more long-term, educational role (cf. Hall, 2010; McKinnon & Bruns, 1992). This is not least manifested in how managers in this study sometimes find it difficult to articulate the relationship between their use of accounting information and what they do in their work.

Implications and future research

Theoretical implications

This dissertation addresses mainly three knowledge debates.

Firstly, whereas previous studies have indeed showed that accounting information is incomplete and becomes actionable when mobilised in its context (e.g. Ahrens & Chapman, 2007; McKinnon & Bruns, 1992; Pitkänen & Lukka, 2011; Preston, 1986; Van der Veecken & Wouters, 2002), this study furthers our understanding of what makes accounting information valuable to managers, what constitutes its context, and what makes it connect to its context. By outlining the capacity of accounting information to act as representation, translation, key and perspective, and the relative importance of these roles vis-à-vis other informational resources, this study contributes to our understanding of how managers learn from accounting information (e.g. Hall, 2010), and adds some conceptual clarity to the “information mosaic” (McKinnon & Bruns, 1992). Not only does accounting information act as an aggregating and unifying language, as has been suggested in previous research, but it also serves to disaggregate, fine-grain and nuance “reality”, not least as a result of the increased scope of management accounting tools. Furthermore, the limits of accounting information in these processes are illustrated, e.g. with regards to its instability in settings with a diversity of local contexts, and its difficulty to translate into action.

Secondly, this study contributes to the knowledge debate on the relationship between accounting information systems and management accounting (e.g. Arnold, 2006; Berry et al., 2009; Rom & Rohde, 2007) by foregrounding and starting to open the black box of accounting information systems in the context of managerial work. For example, the idea of management accounting as increasingly dispersed among actors in an organisation (e.g. Quattrone & Hopper, 2005; Scapens & Jazayeri, 2003) is slightly challenged. Although managers in this study retrieve and manage accounting information themselves to a large extent, there is also a belief in reinforcing the roles of senders and receivers of accounting information. Furthermore, this study illustrates difficulties associated with both reporting and interpreting information, thus drawing attention beyond integration as the main issue of accounting information systems (e.g. Scapens & Jazayeri, 2003). Given the ensemble

perspective of information systems adopted in this study, the importance of addressing organisational issues such as management accounting education, routines for data entry, and understanding of other local contexts in the organisation, is also underlined.

Thirdly, this study supports and elaborates on ideas from previous research (e.g. Jönsson, 1998; Preston, 1986) regarding how managers' (non)-engagement with accounting information is bound up with wider managerial processes, such as appearing knowledgeable, buffering the demands placed on one's subordinates, and the professional identity as flexible and tolerant of ambiguity. Not least does the construction industry setting, which is not oft-studied in management accounting research (e.g. Van der Veecken & Wouters, 2002), seem to suggest a few aspects of the managerial work that influence managers' engagement with accounting information.

Practical implications

Knowledge about managers' engagement with accounting information should be of relevance to various groups, e.g. those working with designing and implementing information systems, and accordingly, those working with designing and implementing performance measures, reports and other information "products" that can be retrieved from the information systems. A first important insight here would be that managers are different (cf. Mårtensson & Mähring, 1992), so general solutions for information provision are probably bound to be received rather differently. However, a few general points are addressed below.

Information technology investments need to be complemented with organisational investments in order to generate value (Brynjolfsson & Hitt, 2000), and management accounting technologies are no exception. The value of accounting information in a manager's work is derived not only from the properties of the information system, but also from a manager's knowledge of the various parts of his/her operations, and how they relate to each other and to other parts of the organisation. Accounting information needs a context, and that context could be e.g. other indicators, hands-on understanding of the underlying operations, or discussions with other managers. The design of management accounting systems could thus include forums and arenas for learning and dialogue.

Although management accounting and more general management issues seem intertwined, and although accounting information is implicitly present in parts of the managerial work, managers tend to think of accounting information as reserved for a particular part of their work – the management ac-

counting “slice”. With the view of management accounting as a specific share of the total “pie chart”, engaging with accounting information may appear as crowding out activities that managers perceive as more valuable. Furthermore, understanding that the various parts of the total “pie chart” are rather different in character and require different skills is also important, because switching between them may be perceived by managers as costly. Even with the best of intentions from the provider side, e.g. tailoring a balanced scorecard or a graphical interface for retrieval of information, managers may well feel that these reports and tools are just another thing on the “to do” list, rather than something that actually supports them. This is not to say that accounting information does not, but with a fragmented “pie chart” of competing tasks of varying nature, the value of accounting information may not be as apparent as to those working with these tools to a larger extent. Therefore, it may be important to find ways of making accounting information “naturally occurring” also in the other parts of the managerial work, e.g. through the use of mobile devices to report data, or through posting accounting information on the physical work site.

Future research

Having studied managers and information in various industries, one main impression is that management technologies are developing at a considerably faster pace than managers’ engagement with information. Even though some things are different than in the studies conducted some decades ago, my studies have left me with the feeling that the cutting-edge management information technologies that we read about on vendor websites and in consultancy reports, are not wide-spread at this point in time. Many managers in this study are more concerned with having extant accounting information more easily retrieved than with having completely novel types of information available. And, some are not concerned with retrieval either. This could be due to various things, e.g. a difficulty to think outside the box, or unwillingness to change. Nevertheless, I am curious to know more about the situation in organisations at the technological forefront, such as Google, Facebook and Spotify, where data mining is a more prevalent part of the business model. Some would argue that managers in such companies spend considerable effort on analysing data (e.g. Davenport & Harris, 2007), but we do not really know whether this holds also for accounting information. Is the typical Facebook manager’s engagement with accounting information different from that of a construction manager, a governmental agency manager, or a food-store chain manager? Do accounting information technologies carry another meaning in a more technologically sophisticated context? I would expect these managers to have both different resources and different

mind-sets in terms of what is seen as technologically possible in their work, but how and to what extent does it materialise in practice?

The intersection between management and management accounting has been discussed in this dissertation, yet, deserves further attention. Under what circumstances does management accounting align or conflict with a manager's values and management virtues? Does "management-by-numbers" clash with "management-by-walking around"? What strategies do managers apply to handle perceived tensions? Also, with the increasing interest in e.g. sustainability, accounting information tends to grow in scope, and the "balance" in the balanced scorecard becomes even more apparent. What does a balanced scorecard, or similar management accounting tool, mean to managers in their daily efforts to manage their area of responsibility? Do managers perceive of multiple dimensions of accounting information as conflicting, and if so, how do they cope with it? Do novel areas of accounting such as sustainability influence the way managers perceive of their roles?

Finally, in the context of control, accounting information in this study has an important role of informing managers of negative deviations, although the potential for using accounting information to exercise positive leadership has also been discussed. That negative deviations gain more attention than positive deviations in managers' fragmented work is not surprising, but studying how and to what extent accounting information is drawn upon to identify and learn from positive deviations could probably generate additional insights into the learning aspects of managers' engagement with accounting information.

References

- Abernethy, M.A. & Vagnoni, E. (2004). Power, organization design and managerial behaviour. *Accounting, Organizations and Society*, 29(3-4), 207-225.
- Ackoff, R.L. (1967). Management misinformation systems. *Management Science*, 14(4), 147-156.
- Adler, P.S. & Borys, B. (1996). Two types of bureaucracy: Enabling and coercive. *Administrative Science Quarterly*, 41(1), 61-89.
- Ahrens, T. (1997). Talking accounting: An ethnography of management knowledge in British and German brewers. *Accounting, Organizations and Society*, 22(7), 617-637.
- Ahrens, T. & Chapman, C. (2002). The structuration of legitimate performance measures and management: Day-to-day contests of accountability in a U.K. restaurant chain. *Management Accounting Research*, 13 (2), 151-171.
- Ahrens, T. & Chapman, C. (2004). Accounting for flexibility and efficiency: A field study of management control systems in a restaurant chain. *Contemporary Accounting Research*, 21(2), 271-301.
- Ahrens, T. & Chapman, C.S. (2006). Doing qualitative field research in management accounting: Positioning data to contribute to theory. *Accounting, Organizations and Society*, 31(8), 819-841.
- Ahrens, T. & Chapman, C. (2007). Management accounting as practice. *Accounting, Organizations and Society*, 32 (1-2), 1-27.
- Alvesson, M. (2003). Beyond neopositivists, romantics, and localists: A reflexive approach to interviews in organizational research. *Academy of Management Review*, 28(1), 13-33.
- Alvesson, M. and Kärreman, D. (2004), "Interfaces of control. Technocratic and socio-ideological control in a global management consultancy firm", *Accounting, Organizations and Society*, Vol. 29 No. 3-4, pp. 423-444.
- Alvesson, M. & Kärreman, D. (2007). Constructing mystery: Empirical matters in theory development. *Academy of Management Review*, 32(4), 1265-1281.
- Andon, P. Baxter, J. & Chua, W.F. (2007). Accounting change as relational drifting: A field study of experiments with performance measurement. *Management Accounting Research*, 18(2), 273-308.
- Ansari, S. & Euske, K.J. (1987). Rational, rationalizing, and reifying uses of accounting data in organizations. *Accounting, Organizations and Society*, 12(6), 549-570.
- Anthony, R.N. (1965). *Planning and control systems: A framework for analysis*. Boston: Harvard University Graduate School of Business Administration.
- Arnold, V. (2006). Behavioral research opportunities: Understanding the impact of enterprise systems. *International Journal of Accounting Information Systems*, 7(1), 7-17.
- Berry, A.J., Coad, A.F., Harris, E.P., Otley, D.T. & Stringer, C. (2009). Emerging themes in management control: A review of recent literature. *The British Accounting Review*, 41, 2-20.

- Boland, R.J. (1993). Accounting and the interpretative act. *Accounting, Organizations and Society*, 18(2-3), 125-146.
- Boland, R.J. & Pondy, L.R. (1986). The micro dynamics of a budget-cutting process: Modes, models and structure. *Accounting, Organizations and Society*, 11(4/5), 403-422.
- Boudreau, M-C. & Robey, D. (2005). Enacting integrated information technology: A human agency perspective. *Organization Science*, 16(1), 3-18.
- Bouwens, J. & Abernethy, M.A. (2000). The consequences of customization on management accounting system design. *Accounting, Organizations and Society*, 25 (3), 221-241.
- Briers, M. & Chua, W.F. (2001). The role of actor-networks and boundary objects in management accounting change: a field study of an implementation of activity-based costing. *Accounting, Organizations and Society*, 26(3), 237-269.
- Brown, J.S. & Duguid, P. (2001). Organization and knowledge: A socio-practice perspective. *Organization Science*, 12(2), 198-213.
- Brunsson, N. (1990). Deciding for responsibility and legitimation: Alternative interpretations of organizational decision-making. *Accounting, Organizations and Society*, 15(1/2), 47-59.
- Bryer, A.R. (2011). Accounting as learnt social practice: The case of the empresas recuperadas in Argentina. *Accounting, Organizations and Society*, 36(8), 478-493.
- Brynjolfsson, E. & Hitt, L.M. (2000). Beyond computation: Information technology, Organizational transformation and business performance. *The Journal of Economic Perspectives*, 14(4), 23-48.
- Burchell, S., Clubb, C., Hopwood, A., Hughes, J., & Nahapiet, J. (1980). The roles of accounting in organizations and society. *Accounting, Organizations and Society*, 5(1), 5-27.
- Burns, J. & Scapens, R.W. (2008). Organizational routines in accounting. In M.C. Becker (Ed.) *Handbook of Organizational Routines* (pp. 87-106). Cheltenham: Edward Elgar.
- Caglio, A. (2003). Enterprise resource planning systems and accountants: Towards hybridization? *European Accounting Review*, 12(1), 123-153.
- Carlile, P.R., Nicolini, D., Langley, A. & Tsoukas, H. (2013). *How matter matters: Objects, artifacts, and materiality in organization studies*. Oxford Scholarship Online.
- Carlson, S. (1951). *Executive behaviour*. Stockholm: Strömberg's.
- Chaudhuri, S., Dayal, U. & Narasayya, V. (2011). An overview of Business Intelligence technology. *Communications of the ACM*, 54 (8), 88-98.
- Chenhall, R., Hall, M. and Smith, D. (2013), Performance measurement, modes of evaluation and the development of compromising accounts. *Accounting, Organizations and Society*, 38(4), 268-287.
- Chua, W.F. (1986). Radical developments in accounting thought. *The Accounting Review*, 61(4), 601-632.
- Chua, W.F. (2007). Accounting, measuring, reporting and strategizing – Re-using verbs: A review essay. *Accounting, Organizations and Society*, 32 (4-5), 487-494.
- Clancy, D.K., & Collins, F. (1979). Informal accounting information systems: Some tentative findings. *Accounting, Organizations and Society*, 4(1-2), 21-30.
- Corley, K.G. & Gioia, D.A. (2011). Building theory about theory building: What constitutes a theoretical contribution? *Academy of Management Review*, 36(1), 12-32.

- Corradi, G., Gherardi, S. & Verzelloni, L. (2010). Through the practice lens: Where is the bandwagon of practice-based studies heading? *Management Learning*, 41(3), 265-283.
- Corvellec, H. (2010). Organizational risk as it derives from what managers value: A practice-based approach to risk assessment. *Journal of Contingencies and Crisis Management*, 18(3), 145-154.
- Cuganesan, S. (2008). Calculating customer intimacy: Accounting numbers in a sales and marketing department. *Accounting, Auditing & Accountability Journal*, 21(1), 78-103.
- Cuganesan, S., Dunford, R. & Palmer, I. (2012). Strategic management accounting and strategy practices within a public sector agency. *Management Accounting Research*, 23(4), 245-260.
- Czarniawska-Joerges, B. & Jacobsson, B. (1989). Budget in a cold climate. *Accounting, Organizations and Society*, 14(1/2), 29-39.
- Daft, R. & Lengel, R. (1986). Organizational Information Requirements, Media Richness and Structural Design. *Management Science*, 32(5), 554-571.
- Daft, R., Lengel, R. & Trevino, L. (1987). Message equivocality, media selection, and manager performance: Implications for information systems. *MIS Quarterly*, 11(3), 355-366.
- Dambrin, C. & Robson, K. (2011). Tracing performance in the pharmaceutical industry: Ambivalence, opacity and the performativity of flawed measures. *Accounting, Organizations and Society*, 36(7), 428-455.
- Davenport, T. H. (2000). *Mission critical: Realizing the promise of enterprise systems*. Boston: Harvard Business School Press.
- Davenport, T.H. & Harris, J.G. (2007). *Competing on analytics – The new science of winning*. Boston: Harvard Business School Press.
- Davis, G.F. (2010). Do theories of organizations progress? *Organizational Research Methods*, 13(4), 690-709.
- Dent, J. F. (1991). Accounting and organizational cultures: A field study of the emergence of a new organizational reality. *Accounting, Organizations and Society*, 16(8), 705-732.
- Dubois, A. & Gadde, L-E. (2002). The construction industry as a loosely coupled system: Implications for productivity and innovation. *Construction Management and Economics*, 20(7), 621-631.
- Dyer, W.G. & Wilkins, A.L. (1991). Better stories, not better constructs, to generate better theory: A rejoinder to Eisenhardt. *Academy of Management Review*, 16(3), 613-619.
- Eisenhardt, K.M. (1989). Building theories from case study research, *The Academy of Management Review*, 14(4), 532-550.
- Eisenhardt, K.M. (1991). Better stories and better constructs: The case for rigor and comparative logic. *Academy of Management Review*, 16(3), 620-627.
- Fauré, B. & Rouleau, L. (2011). The strategic competence of accountants and middle managers in budget making. *Accounting, Organizations and Society*, 36(3), 167-182.
- Feldman, M.S. & March, J.G. (1981). Information in organizations as signal and symbol. *Administrative Science Quarterly*, 26(2), 171-186.
- Feldman, M.S. & Orlikowski, W.J. (2011). Theorizing practice and practicing theory. *Organization Science*, 22(5), 1240-1253.
- Ferris, G.R., Hochwarter, W.A & Buckley, M.R. (2012). Theory in the organizational sciences: How will we know it when we see it? *Organizational Psychology Review*, 2(1), 94-106.

- Forza, C. and Salvador, F. (2000), "Assessing some distinctive dimensions of performance feedback information in high performing plants", *International Journal of Operations and Production Management*, Vol. 20 No. 3, pp. 359-385.
- Funck, E. (2007), The balanced scorecard equates interests in healthcare organizations. *Journal of Accounting and Organizational Change*, 3(2), 88-103.
- Geiger, D. (2009). Revisiting the concept of practice: Toward an argumentative understanding of practicing. *Management Learning*, 40(2), 129-144.
- Granlund, M. & Malmi, T. (2002). Moderate impact of ERPS on management accounting: A lag or permanent outcome? *Management Accounting Research*, 13(3), 299-321.
- Gullberg, C. (2011). *Puzzle or mosaic? On managerial information patterns*. Licentiate dissertation, Linköping University.
- Haigh, T. (2001). Inventing information systems: The systems men and the computer, 1950-1968. *The Business History Review*, 75(1), 15-61.
- Hall, M. (2010). Accounting information and managerial work, *Accounting, Organizations and Society*, 35(3), 301-315.
- Hansen, S.C. & Van der Stede, W.A. (2004). Multiple facets of budgeting: An exploratory analysis. *Management Accounting Research*, 15(4), 415-438.
- Hartmann, F.G.H. (2000). The appropriateness of RAPM: Toward the further development of theory. *Accounting, Organizations and Society*. 25(4-5), 452-482.
- Harty, C. (2008). Implementing innovation in construction: Contexts, relative boundedness and actor-network theory. *Construction Management and Economics*, 26(10), 1029-1041.
- Hedberg, B. & Jönsson, S. (1978). Designing semi-confusing information systems for organizations in changing environments. *Accounting, Organizations and Society*, 3(1), 47-64.
- Hopwood, A.G. (1973). *An accounting system and managerial behaviour*. D.C. Heath Ltd: Saxon House
- Horngren, C.T. (1995). Management accounting: This century and beyond. *Management Accounting Research*, 6(3), 281-286.
- Ittner, C.D. & Larcker, D.F. (2003). Coming up short on nonfinancial performance measurement. *Harvard Business Review*, 81(11), 88-95.
- Iveroth, E. (2010). Inside Ericsson: A framework for the practice of leading global IT-enabled change. *California Management Review*, 53(1), 136-153.
- Jacobsson, M. & Linderoth, H.C.J. (2012). User perceptions of ICT impacts in Swedish construction companies: "It's fine, just as it is". *Construction management and economics*, 30(5), 339-357.
- Johnson, G., Melin, L. & Whittington, R. (2003). Micro strategy and strategizing: Towards an activity-based view. *Journal of Management Studies*, 40(1), 3-22.
- Johnson, H.T. & Kaplan, R.S. (1987). *Relevance lost – The rise and fall of management accounting*. Boston: Harvard Business School Press.
- Jordan, S. & Messner, M. (2012). Enabling control and the problem of incomplete performance measures. *Accounting, Organizations and Society*, 37(8), 544-564.
- Jönsson, S. (1998). Relate management accounting research to managerial work! *Accounting, Organizations and Society*, 23(4), 411-434.
- Jönsson, S. & Grönlund, A. (1988). Life with a sub-contractor: New technology and management accounting. *Accounting, Organizations and Society*, 13(5), 512-532.
- Jönsson, S. & Solli, R. (1993). "Accounting talk" in a caring setting. *Management Accounting Research*, 4(4), 301-320.

- Jørgensen, B. & Messner, M. (2010). Accounting and strategizing: A case study from new product development. *Accounting, Organizations and Society*, 35(2), 184-204.
- Kald, M., Nilsson, F. & Rapp, B. (2000). On strategy and management control: The importance of classifying the strategy of the business. *British Journal of Management*, 11(3), 197-212.
- Kaplan, R.S. & Norton, D.P. (1996). Using the balanced scorecard as a strategic management system. *Harvard Business Review*, 74(1), 75-85.
- Kihn, L-A. (2011). How do controllers and managers interpret budget targets? *Journal of Accounting & Organizational Change*, 7(3), 212-236.
- Klaus, H., Rosemann, M., Gable, G.G. (2000). What is ERP? *Information System Frontiers*, 2(2), 141-162.
- Klein, H.K. & Myers, M.D. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly*, 23(1), 67-93.
- Kotter, J.P. (1982). What effective general managers really do. *Harvard Business Review*, 60(6), 156-167.
- Langefors, B. (1995). *Essays on infology: Summing up and planning for the future*. Lund: Studentlitteratur.
- Leonardi, P.M. (2011). When flexible routines meet flexible technologies. *MIS Quarterly*, 35 (1), 147-167.
- Leonardi, P.M. (2013). Theoretical foundations for the study of sociomateriality. *Information & Organization*, 23(2), 59-76.
- Leonardi, P.M. & Barley, S.R. (2008). Materiality and change: Challenges to building better theory about technology and organizing. *Information and Organization*, 18(3), 159-176.
- Leonardi, P.M. & Barley, S.R. (2010). What's under construction here? Social action, materiality, and power in constructivist studies of technology and organizing. *The Academy of Management Annals*, 4(1), 1-51.
- Lindvall, J. (2009). *Controllerns nya roll: Om verksamhetsstyrning i informationsrik miljö* [The new role of the controller: On management control in information-rich environments]. Stockholm: Norstedts.
- Llewelyn, S. (2003). What counts as "theory" in qualitative management and accounting research? Introducing five levels of theorizing. *Accounting, Auditing & Accountability Journal*, 16(4), 662-708.
- Locke, K. & Golden-Biddle, K. (1997). Constructing opportunities for contribution: Structuring intertextual coherence and "problematizing" in organizational studies. *The Academy of Management Journal*, 40(5), 1023-1062.
- Lowe, A. & Koh, B. (2007). Inscribing the organization: Representations in dispute between accounting and production. *Critical perspectives on accounting*, 18(8), 952-974.
- Lynch, R.L. & Cross, K.F. (1995). *Measure up! Yardsticks for continuous improvement*. Cambridge, MA.: Blackwell Publishers.
- Malmi, T. & Brown, D.A. (2008). Management control systems as a package – Opportunities, challenges and research directions. *Management Accounting Research*, 19(4), 287-300.
- McKelvey, B. (2006). Van de Ven and Johnson's "Engaged scholarship": Nice try, but... *Academy of Management Review*, 31(4), 822-829.
- McKinnon, S. & Bruns, W. (1992). *How managers get the information they really need – The information mosaic*. Boston: Harvard Business School Press.

- Mendoza, C. & Bescos, P-L. (2001). An explanatory model of managers' information needs: Implications for management accounting. *The European Accounting Review*, 10(2), 257-289.
- Mintzberg, H. (1975). The manager's job; Folklore and fact. *Harvard Business Review*, 53(4), 49-61.
- Mouritsen, J., Hansen, A. & Hansen, C.Ø. (2009). Short and long translations: Management accounting calculations and innovation management. *Accounting, Organizations and Society*, 34(6-7), 738-754.
- Mårtensson, P. & Mähring, M. (1992). *Information support from staff to executives – An explorative study*. Licentiate thesis, EFI Research Report, Stockholm: Stockholm School of Economics.
- Nilsson, K. (1999). *Ledtider för ledningsinformation*. Dissertation, EFI Research Institute, Stockholm: Stockholm School of Economics.
- Nørreklit, H. (2000). The balance of the balanced scorecard – a critical analysis of some of its assumptions. *Management Accounting Research*, 11(1), 65-88.
- Olve, N-G., Petri, C-J., Roy, J. & Roy, S. (2003). *Making scorecards actionable – Balancing strategy and control*. London: John Wiley and Sons.
- Orlikowski, W.J. (2007). Sociomaterial practices: Exploring technology at work. *Organization Studies*, 28(9), 1435-1448.
- Orlikowski, W.J. (2010). The sociomateriality of organizational life: Considering technology in management research. *Cambridge Journal of Economics*, 34, 125-141.
- Orlikowski, W.J. & Iacono, C.S. (2001). Research commentary: Desperately seeking the "IT" in IT research – A call to theorizing the IT artifact. *Information Systems Research*, 12(2), 121-134.
- Orlikowski, W.J. & Scott, S.V. (2008). 10 Sociomateriality: Challenging the separation of technology, work and organization. *The Academy of Management Annals*, 2(1), 433-474.
- Orlikowski, W.J. & Yates, J. (1994). Genre repertoire: The structuring of communicative practices in organizations. *Administrative Science Quarterly*, 39(4), 541-574.
- Otley, D.T. & Berry, A.J. (1980). Control, Organisation and Accounting. *Accounting, Organizations and Society*, 5(2), 231-244.
- Pfeffer, J., & Sutton, R.I. (2006). *Hard facts, dangerous half-truths, and total nonsense: Profiting from evidence-based management*. Boston: Harvard Business School Press.
- Pierce, B. & O'Dea, T. (2003). Management accounting information and the needs of managers: Perceptions of managers and accountants compared. *The British Accounting Review*, 35(3), 257-290.
- Pitkänen, H. & Lukka, K. (2011). Three dimensions of formal and informal feedback in management accounting. *Management Accounting Research*, 22 (2), 125-137.
- Preston, A. (1986). Interactions and arrangements in the process of informing. *Accounting, Organizations and Society*, 11(6), 521-540.
- Quattrone, P. & Hopper, T. A 'time-space odyssey': Management control systems in two multinational organizations. *Accounting, Organizations and Society*, 30(7-8), 735-764.
- Reckwitz, A. (2002). Toward a theory of social practices: A development in culturalist theorizing. *European Journal of Social Theory*, 5(2), 243-263.
- Robson, K. (1992). Accounting numbers as "inscription": Action at a distance and the development of accounting. *Accounting, Organizations and Society*, 17(7), 685-708.

- Rom, A. & Rohde, C. (2007). Management accounting and integrated information systems: A literature review. *International Journal of Accounting Information Systems*, 8(1), 40-68.
- Samuelson, O. (2008). The IT-barometer – a decade’s development of IT use in the Swedish construction sector. *ITcon*, 13, 1-19, <http://www.itcon.org/2008/1>.
- Sandberg, J. & Dall’Alba, G. (2009). Returning to practice anew: A life-world perspective. *Organization Studies*, 30(12), 1349-1368.
- Sandberg, J. & Tsoukas, H. (2011). Grasping the logic of practice: Theorizing through practical rationality. *Academy of Management Review*, 36(2), 338-360.
- Scapens, R. & Jazayeri, M. (2003). ERP systems and management accounting change: Opportunities or impacts? A research note. *European Accounting Review*, 12(1), 201-233.
- Schatzki, T.R. (2005). Peripheral vision: The sites of organizations. *Organization Studies*, 26(3), 465-484.
- Schatzki, T.R., Knorr-Cetina, K. & von Savigny, E. (2001). *The practice turn in contemporary theory*. London: Routledge.
- Silverman, D. (2006). *Interpreting qualitative data*. London: Sage Publications.
- Simon, H.A., Guetzkow, H., Kozmetsky, G. & Tyndall, G. (1954). *Centralization vs. decentralization in organizing the controller’s department*. New York: Controllership Foundation.
- Simons, R. (1995). Control in an age of empowerment. *Harvard Business Review*, 73(2), 80-88.
- Skaerbaek, P. & Tryggestad, K. (2010). The role of accounting devices in performing corporate strategy. *Accounting, Organizations and Society*, 35(1), 108-124.
- Stake, R.E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.
- Styhre, A. (2008). The role of social capital in knowledge sharing: The case of a specialist rock construction industry. *Construction Management and Economics*, 26(9), 941-951.
- Styhre, A. (2010). The culture of complaint in construction: Affirmative reflections on its role and function. *Construction Management and Economics*, 28(7), 797-803.
- Styhre, A. (2011). In the circuit of credibility: Construction workers and the norms of a good job. *Construction Management and Economics*, 29(2), 199-209.
- Styhre, A. & Josephson, P-E. (2006). Revisiting site manager work: Stuck in the middle? *Construction Management and Economics*, 24(5), 521-528.
- Suddaby, R., Hardy, C. & Huy, Q.N. (2011). Where are the new theories of organization? *Academy of Management Review*, 36(2), 236-246.
- Sutton, R.I. & Staw, B.M. (1995). What theory is not. *Administrative Science Quarterly*, 40(3), 371-384.
- Tengblad, S. (2002). Time and space in managerial work. *Scandinavian Journal of Management*, 18(4), 543-565.
- Vaara, E. & Whittington, R. (2012). Strategy-as-practice: Taking social practices seriously. *The Academy of Management Annals*, 6(1), 285-336.
- Vaivio, J. (1999). Examining “the quantified customer”. *Accounting, Organizations and Society*, 24(8), 689-715.
- Vaivio, J. (2008). “Qualitative management accounting research: rationale, pitfalls and potential”, *Qualitative Research in Accounting and Management*, Vol. 5 No. 1, pp.64-86.
- Van der Veeken, H.J.M. & Wouters, M.J.F. (2002). Using accounting information systems by operations managers in a project company. *Management Accounting Research*, 13(3), 345-370.

- Van de Ven, A.H. & Johnson, P.E. (2006). Knowledge for theory and practice. *Academy of Management Review*, 31(4), 802-821.
- Wagner, E. L., Moll, J. & Newell, S. (2011). Accounting logics, reconfiguration of ERP systems and the emergence of new accounting practices: A sociomaterial perspective. *Management Accounting Research*, 22(3), 181-197.
- Webster, J. & Watson, R.T. (2002). Analyzing the past to prepare for the future: Writing a literature review. *MIS Quarterly*, 26(2), xiii-xxiii.
- Weick, K.E. (1985). Cosmos vs. Chaos: Sense and nonsense in electronic contexts. *Organizational Dynamics*, 14(2), 51-64.
- Weick, K.E. (1995). What theory is not, theorizing is. *Administrative Science Quarterly*, 40(3), 385-390.
- Westelius, A. (2006). Muddling through – The life of a multinational, strategic enterprise systems venture at BT industries. *Linköping Electronic Articles in Computer and Information Science*, 10(1).
- Wetherbe, J.C. (1991). Executive information requirements: Getting it right. *MIS Quarterly*, 15(1), 51-65.
- Whetten, D.A. (1989). What constitutes a theoretical contribution? *Academy of Management Review*, 14(4), 490-495.
- Whitley, R. (2000). *The intellectual and social organization of the sciences*. Oxford: Oxford University Press.
- Whittington, R. (2006). Completing the practice turn in strategy research. *Organization Studies*, 27(5), 613-634.
- Whittington, R. (2011). The practice turn in organization research: Towards a disciplined transdisciplinarity. *Accounting, Organizations and Society*, 36(3), 183-186.
- Zammuto, R.F., Griffith, T.L., Majchrzak, A., Dougherty, D.J. & Faraj, S. (2007). Information technology and the changing fabric of organization. *Organization Science*, 18(5), 749-762.
- Zuboff, S. (1985). Automate/Informate: The two faces of intelligent technology. *Organizational Dynamics*, 14(2), 5-18.

Appendix 1

Table 2. *Overview of interviews and observations*

Interviews and observation of project-related meetings	Number	Average duration
Vice CEO	1	80 minutes
Regional managers	7	80 minutes
District managers	7	75 minutes
Project managers	8	85 minutes
Production managers	7	80 minutes
Project-related workshops	6	4.5 hours
Follow-up meeting to workshop	1	1.5 hours
Site visit and meeting	1	1.5 hours

Table 3. *Overview of scheduled interaction with change managers*

Scheduled meetings with change managers	Number	Average duration
Introductory meetings	3	2 hours
Continuous follow-up Meetings	5	2 hours
Reporting meeting	1	4 hours

Table 4. *Overview of documents*

Documents	Total number of pages
PowerPoint presentations of the project	105
Report from survey	12
Excel sheet with financial follow-up and forecast from a project	3
Management manual, top management	72
Management manual, project management	143

