EUROPEAN BUSINESS UNIVERSITY OF LUXEMBOURG

A conceptual map
to assess a functioning Management Control System

By

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Abstract

Assessing a functioning MCS fit for its purpose is the challenge that both academics and practitioners face in a fast changing academic and real-world environment. Both academics and practitioners are unaware how to assess a functioning Management Control Systems (MCS) to be considered functional for its purpose. The conceptual map of this dissertation provides research opportunities to investigate, and for practitioners to assess the antecedents, factors and moderators that produce the ambidexter performance outcome of a functioning MCS, therefore the opportunity whether the MCS supports the paradoxical execution of ambidexter strategies balancing opposing, yet co-existing, demands of real-world tensions.

Paradoxically, organizational leaders and their top managers demand explorative behavior of managers meanwhile debating exploitative performances with the same managers. Organizational leaders unintentionally challenge the functioning MCS, as they purposely influence the functioning vs. functional interplay with explorative assignments, challenging organizational status quos. In contradiction organizational leaders ask for an exploitative information flow while they demand an ambidexter information flow. The same organizational leader asks for a business partner with instrumental skills based on inferenced information, meanwhile demanding a business partner with skills to encourage organizational learning capabilities to help navigate the organization among dissipating plains.

Academic MCS theory can be self-contained and disconnected from relevance for practice. From the perspective of effectiveness, MCS has been researched nearing the functioning versus functional debate. This research's conceptual map addresses the concern of academic MCS research bridging the rigor of research with the relevance for practice and provides an opportunity to connect academic research with the world of practice as the paradoxical MCS problem is seen as an opportunity.

Declaration

I, Martin Mohamed Sarpai Kartomo, declare that

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Acknowledgements

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Chapter 1. Introduction

Transitioning organizations to the new normal following environmental shocks, economic upheavals, and technological innovations is a challenge to classic organizational management

(Klimczak & Shachmurove, 2021, p. 4)

1.1.   Why this study is important

This dissertation is a study to develop a holistic conceptual map to assess a functioning MCS being functional and is important and needed for several reasons. First, a gap exists in MCS literature in understanding the problem of assessing a functioning MCS being functional. Secondly, what are academically known and unknown factors to assess whether a MCS is functional. Thirdly is to understand how decisionmakers assess whether their functioning MCS is functional. Fourth, MCS studies have used exemplary single case studies (Carlsson-Wall et al., 2011; De Ribeiro Campos et al., 2019; Pernot & Roodhooft, 2014), while this study is conducted using multiple case studies across multiple industries following a maximum variation sampling strategy (Saunders et al., 2019, p. 321). Fifth, this dissertation shows that instantaneous fit between formal MCS and deliberate strategy is not helpful in illustrating evolution, nor is able to explain success. Finally, this study will produce a conceptual map for researchers allowing for new, meanwhile illuminating under-investigated, MCS research avenues to assess MCS being functional.

1.1.1.   Motivation from theory and practice

The first motivation for this dissertation topic is the call for "studies by academics who are better connected with the world of practice" in order for MCS research that leads to better, more reliable theories of MCS that are also useful to practitioners (Merchant & Otley, 2020). While theory can be self-contained, the impact of research arguably finds its most compelling and highest audience when it addresses the agenda items and concerns of practitioners (Posner, 2009). The objective of this research has long been demanded by scholars (Abernethy, M.A., Guthrie, 1994; Grabner & Moers, 2013; Kolk, 2019; Lueg & Radlach, 2016; Malmi & Brown, 2008; Otley, 1995). Supporting the implementation of strategy is one of the most important roles of MCS.

The challenge for any MCS is that strategies differ between organizations as they operate in their own unique environment, and controls should be tailored to the requirements of specific strategies (R. W. Adler, 2011; Otley & Soin, 2014). The relationship between MCS and supporting business strategy can never be overemphasized, as their relationship can only be positive where there is effective and efficient alignment between strategy and MCS (Mohammed et al., 2020). From the personal observation of decades of practical business experience, practitioners often refer to the complexity of the organization. MCS are complex in themselves, and they interact in complex ways with the settings in which they are used (Merchant & Otley, 2020). Anthony and Govindarajan (2004) confirm the required fluidity of the MCS process. And DeMartini and Otley (2020) adopted the paradoxical view that control systems are the result of both rational choice (i.e. human deliberate intention and design) and 'natural' evolution (i.e. path depended or spontaneous grown). The call by Merchant and Otley (2020) and the complex phenomena of a functional MCS suggest that MCS research should conduct qualitative research that includes close observation and study rather than on arm's length, or academic ivory tower, approaches that are based on lab data or proxies.

The second motivation is from the perspective of a practicing practitioner. How does a decision-maker know if the functioning MCS is functional (Marx et al., 2012; O'Grady et al., 2016)? Management control and its systems are the means to support strategy implementation. That is the 'promise' towards business practitioners, whether employed as a manager or as a consultant involved in MC practices. One might expect in today's technology rich business environment, with a vast knowledgebase at our grasp, the necessity of an explorative MC process due to the speed of development, should be common. For decision-makers it is a constant balancing act as they face uncertainty while achieving organizational objectives negotiating them with inter-organizational relationships, e.g. strategic alliances, and the broader context of society. This creates challenges for the design and use of MCS's because the roles of MCS in managing these types of relationships transcend organizational boundaries as companies increasingly rely on strategic and operational partners to access complementary resources and skills, protect their markets, win new market share, and share risks (Carlsson-Wall et al., 2011;

De Ribeiro Campos et al., 2019; Di Vaio et al., 2019; Langfield-Smith, 2006; Meira et al., 2010).

Meanwhile decision-makers need to manage business processes and motivate employees (Eldridge et al., 2014). This is known in academic literature as Management Control (MC), the process by which managers influence other members of the organization to implement the organization's strategies (Anthony, 1965). MCS is the MC tool for decision-makers to exert control over the attainment of organizational goals doing the right things right and to enable employees to search for opportunities and solve problems (Chapman, 2005; Falkheimer et al., 2016) therefore constantly adapting their business processes and the configuration of their MCS accordingly.

A MCS is an intra-organizational tool designed to achieve the greatest possible goal congruence, where people pursue personal goals that conduce to the organizational goal (Chapman, 2005), but cannot be seen as an isolated intra-organizational system purposely neglecting inter-organizational aspects (Grabner & Moers, 2013). Another personal observation in numerous industries in banking, retail, healthcare, accounting, and trade is that all organizations have IT-based administrative and information systems, meanwhile nurturing an ocean of pernicious parsimonious systems that serve a wide array of control practices. These parsimonious systems are based on the personal perspective and interpretation of the owner who is proud of the 'unique' intellectual knowledge captured within these parsimonious systems. But MC and MCS exercised by means of parsimonious systems, usually with myopic perspectives, and governed with the personal ethics and governance of the respective owners(s) appears to carry pernicious consequences for both for the organization as for the owner(s) of the parsimonious system(s) (Chtioui & Thiéry-Dubuisson, 2011).

1.2. Management Control Systems by Robert Anthony (1965)

Several MCS researchers can be considered an authority on MCS, but most built on the seminal work of Anthony (1965). Robert Anthony (1965) suggested a Management Control Systems framework at the Harvard Business School under the title of

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'Management Planning and Control Systems'. His approach was intended to achieve two aims. First, to broaden the scope of information beyond just accounting information. Second, it brought issues of managerial motivation and behavior into view (Otley, 1999). Anthony (1965) highlighted the necessity that if top management does not implement appropriate control practices supporting organizational objectives, lower-level managers and employees might not be clear on what results to achieve and how to use the resources at their disposal (Hartmann et al., 2021, p. 5).

Anthony (1965) unintentionally highlighted the ambidextrous challenges of a functional MCS as top management need to be exploitative coercing controls mechanisms mechanically (Beuren & Dos Santos, 2019; Lopez-Valeiras et al., 2016), while paradoxically, top management must also be explorative, deploying control mechanisms organically (Gschwantner & Hiebl, 2016). Anthony (1965) defined MCS as

"the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives"

with a formal and an informal control system (Chtioui & Thiéry-Dubuisson, 2011; Hosoda, 2018; Merchant & Van der Stede, 2007). The distinction between the formal and informal MCS helps in framing the functioning versus functional interplay in the process of supporting the implementation of strategies.

1.2.1. A formal control system

A formal control system (FCS) is understood as synonymous with MCS and is defined as regularized approaches to ensure the execution of individual activities by which managers influence other members of the organization to implement the organization's strategies (Govindarajan & Fisher, 1990; Hosoda, 2018). The primary components of the formal system consist of financial controls, such as budgetary control systems. In addition, non-financial controls that consider non-financial measures are also employed to support the implementation of strategy as key success factors. This control system consists of a multitude of process that includes planning, performance

measurement, evaluation, feedback, and corrective action (Hosoda, 2018; Malmi & Brown, 2008; Marx et al., 2012).

1.2.2. An informal control system

The informal control system may be defined as a system that fosters an organizational climate conducive to behavior based on the organization's values and beliefs of managers and employees and is enhanced by social controls (Hosoda, 2018). The informal control system does not control behavior through explicit, verifiable measures. Rather, an informal system comprises of common values, beliefs, and traditions that direct group members' behavior (Hosoda, 2018; Ouchi, 1980; Wijethilake et al., 2018). This raises the question of whether the informal control system can be designed or considered a conceptual structure? On the one side, is the informal system fostering flexibility when strategies change, or unintended ones emerge? Or is the informal system fostering activities that routinely form with norms? This is a continuous discussion in practice as it fuels complexity in guiding individual and group behavior to functionally steer activities that support organizational goals and strategies (Hartmann et al., 2021, p. 5). The interaction of the formal and informal controls amidst the broadened perspectives in MC and its systems is a subject of debate amongst researchers (Chtioui & Thiéry-Dubuisson, 2011; Merchant & Otley, 2020). It is therefore difficult to assess whether the informal side of the MCS, as an MC instrument, can be called functional while functioning.

1.3. The opposing challenges in MCS research

The aforementioned challenges are continuous in MCS research and regularly phrased as the formal and informal system, or the system versus package debate (Escofet, N.C., Rosanas, J. M, 2012; Grabner & Moers, 2013; Merchant & Otley, 2020; Zanibbi, 2011). And in the design and use debate the use of the MCS even more so, as the use debate is multiplied by insights, viewpoints and perspectives of the components of the MCS and/or a combination of the MCS components and/or the interplay of factors influencing the behavior and/or effects of the MCS components (Arachchilage & Smith, 2013; Chong & Mahama, 2014; Ferreira & Otley, 2009; Nisiyama et al., 2016;

Wijethilake et al., 2018). Motivated by the first two, the key motivation for this dissertation is to provide a conceptual map to assess a MCS to be functional for its purpose that is helpful for practitioners and for researchers illuminating under researched MCS avenues. From a management accounting perspective and with an epistemological research philosophy multiple textbook examples of functioning MCS are plentiful (Hartmann et al., 2021; Merchant & Van der Stede, 2007; Otley & Soin, 2014). That is, organizations that can present multiple years of positive financial exploitative growth and consistency at meeting its projected forecast year after year. The importance of this study, distinguishing between functioning and functional, is such that ignoring this research question is best illustrated with examples that have a global impact.

First, reputable organizations with functioning MCS becoming dysfunctional, shocking the world with unfair consequences. The financial crisis of 2008 (Erkens et al., 2012; Escofet, N.C., Rosanas, J. M, 2012), the case of the 2010 BP oil spill in the Gulf of Mexico (NationalCommission, 2011) and the 2015 Volkswagen Dieselgate (Blažek & Slovák, 2018). The commonality of the examples is that they were awed as examples for good practice up to the point that they were not (Blažek & Slovák, 2018; Erkens et al., 2012; Escofet, N.C., Rosanas, J. M, 2012). In the financial crisis of 2008, governments were forced to intervene and inject public funds into society. In the 2010 BP oil spill and the 2015 Volkswagen Dieselgate governments responded with special committees resulting in legislation (Blažek & Slovák, 2018; NationalCommission, 2011). The justification for each intervention was to avoid worse consequences for the rest of society, whether financial, environmental, trust, or the broader society itself. Decisionmakers and managers had functioning MCSs inducing just managerial behavior, however generating unfair outcomes (Escofet, N.C., Rosanas, J. M, 2012).

A second, and final, illustration are cases of organizations with at first doubtful, but clear and distinct strategic choices. The strategic choices of Apple and Tesla needed to be supported by both a functioning and a functional MCS balancing exploitative reporting value with explorative, foresight oriented, avenues of value creation and innovation. Apple is one of the world's most successful companies who lead the digital music revolution with its iPods and iTunes online store, reinvented the mobile phone with its

revolutionary iPhone and App Store, and paved new paths for mobile media and computing devices (Fawzy & Olson, 2018). In an industry operated on the premise of massive economies of scale, Tesla has a distinct and different strategy that needed to be supported by both a functioning and a morphing functional MCS. Tesla did not compete within the confines of the existing industry or attempt to steal customers from the existing automobile rivals (Perkins & Murmann, 2018). Tesla's trajectory, from start-up on the brink of bankruptcy to a company mass producing electric vehicles has changed the future of the global automobile sector (Perkins & Murmann, 2018). Although limited academic evidence is present to support a functional MCS, both organizations are known for their innovative power and their ability to continuously improve the quality of its products, services, and/or work environments to be competitive.

1.3.1. Not a straightforward outcome

The outcome of a functional MCS can be easily interpreted as that it should contain measures as a 'system' does. Here lies another research paradox whereas the formal systems can produce measures, it would be challenging for the informal system. This can be best clarified by the operationalization approach of formulating a research problem, namely the distinction of measurability of a variable versus a concept (R. Kumar, 2011, p. 104). In this research, a functional MCS, a concept is a subjective impression with limited uniformity as its understanding among multiple scholars is different and cannot be measured. On the other hand, a variable with a cause-and-effect relationship can be measured, even with a degree of subjectivity.

1.4. Statement of the problem

At the heart of the paradoxical debate in MCS scholarly literature is, that there is no clear, conceptual map to assess a functioning MCS being functional. Therefore, the problem in MCS research is that it has evolved into a research arena where researchers contradict and challenge each other findings (Aziz et al., 2015; Dutta et al., 2016; Martin, 2020; Martyn et al., 2016) detaching MCS research outcome from relevance to managerial practice for managing strategy execution. This is confirmed in the scholarly

'beyond the systems versus package' debate (Merchant & Otley, 2020), where the heart of the discussion is that no single control method is completely effective in isolation.

From the perspective of effectiveness, MCS has been researched (Adhi Nugroho & Hartanti, 2019; Agbejule & Jokipii, 2009; Cater & Pucko, 2010; Chong & Mahama, 2014) nearing the functioning versus functional perspectives. MCS scholars have unintendingly been debating each other's understanding of a functioning versus a functional MCS, challenging each other's understanding of the MCS design and use (Chowdhury & Shil, 2020; Kolk, 2019; Umans et al., 2020).

1.4.1. The problem of defining a functional MCS

The problem of defining the functioning versus functional MCS context, is best clarified using a metaphor from the real-world example of a vehicle. Metaphors are useful and powerful communication devices used in our daily conversation and in academic research (Itkin & Nagy, 2014) and MCS is seen as a vehicle for executing strategy (Merchant & Van der Stede, 2007),

The driver of a vehicle steers an organized assembly of mechanical components. The driver trusts that individual components of the vehicle are doing the right things as they were designed to do, being *functional*. Using the mechanics of the wheel, the vehicle is functionally steered towards the intended destination *functioning* according to the purpose of a mean of transport. The vehicle has an inter-relation with other vehicles negotiating available resources. The vehicle performs according to its design, and technology aids by constantly and diagnostically evaluating most mechanical components' performance to ensure they are functioning according to their design. In regular intervals, there is an inter-relationship with a specialist who diagnostically reviews whether the output of individual mechanics performs within inter-active standards, which can evolve over time.

Due to the evolving contingent context in which the vehicle needs to perform, it might evolve to not being functional while functioning, requiring additional (temporary)

and complementary mechanisms or a complete overhaul to remain functional. It should be clear that the MCS is not an automaton, that is an automatically running machine (Hartmann et al., 2021, p. 433). If this were the case, than the making of the internal control systems would not be a major challenge that economists and management scholars are facing (Simons, 1994, p. 5).

1.4.2. Objective of the study

The objective of this study is to provide a conceptual map for researchers and practitioners to assess a functioning MCS being functional for its purpose. The opportunity of a conceptual map is not to present MCS scholarly completeness nor proof conceptual depth. It should be recognized as a structured conceptual view for advancing and furthering MCS research to better connect with the world of practice.

1.4.3. The paradox in academic MCS evidence

The conceptual fulfillment of the objective of this study is not straightforward as multiple perspectives need to be considered. First the opposing academic perspectives of research philosophies in MCS research. The epistemological stand dominates the MCS research arena, while the ontological stand underlines the real-world complexity of MCS itself, and that they interact with complex ways in which they are used that would connect theory with practice. Secondly, opposing demands in practice emphasize the duality of the role of the practicing controller being functional for supporting strategy execution. Thirdly, MCS research follows pre-dominantly inductive and deductive research logic, focusing on the researcher's perspective, ignoring practitioner's perspective where abductive research logic is relevant as to capture the knowledge from the practitioner to potentially generalizable academic theory. Finally, the gap between MCS theory and real-world practice as much research work has focused on narrow aspects of management control systems and has often detached itself from their wider organizational contexts, diminishing its value (Merchant & Otley, 2020).

The criticism on MCS research doctrine, in this dissertation, is that MCS research is more concerned and focused on isolated MCS components debating multiple

perspectives with contradicting results and ignoring the experience of practitioners, instead of researching whether the MCS is functional for its purpose. MCS research has focused mainly on MCS' components, how MCS' operates, and its performance measurement. In fact, MCS research on both sides of the Atlantic benefitted from MCS research with limited variables, which led to a disconnection between academic research work and the real-life behaviors and vocabularies of managers (Merchant & Otley, 2020). Most research studies in MCS choose to examine a few attributes of a control system and their effect(s) on one or two outcomes, often with consideration of a few contextual variables, and yielding limited findings to improve practice or develop theory (Merchant & Otley, 2020). The evaluation of a functional MCS for the contingent situation and the specific organization's strategy did not get too much attention (Adib & Zhang, 2019; Merchant & Otley, 2020). However, there are opportunities in existing MCS research to identify and describe criteria/measures to assess a functioning MCS to be functional as researchers have purposely suggested and unintendedly mentioned criteria that affect MCS being functional.

1.5. Research question

Following the statement of the problem, the research question is " how to assess a functioning Management Control System (MCS) to be considered functional?" As the objective is a conceptual map to further MCS research, this research is guided by the following sub-questions:

1. What is academically known to assess a MCS being functional?
2. What can be learned from real-world experience to assess a MCS being functional?

This research combines resource-based theoretical perspectives and an ontological agency theory approach to assess a functioning MCS to be considered functional. Specifically, this dissertation investigates what can be learned from practice from five different sectors in the Netherlands so that the results of the study can be generalized, as to research executed in one sector may question the generalizability of the findings. The findings signify the importance of a functional MCS to support the successful implementation of strategies.

1.6. The Structure of the dissertation

The dissertation is organized into 8 chapters and follows the proposed structure of the EBU Doctor of Business Administration guidelines. First an introduction chapter. Then the first stage for the describing the methodology followed by a stage for presenting and discussing the results. The final stage is the conclusion, limitations of the research and suggestions for further research. Chapter 1 Introduced the research of this dissertation. Specifically, the motivation for this research, the significance of the study, and the aims and objectives of the research.

Stage 1

Chapter 2 will describe the research methodology and the methods to gather evidence. Importantly, the operationalization of the research where the systematic literature review and cross-case study is abductively conducted to research the paradoxical phenomenon of a functional MCS.

Chapter 3 will describe stage 1 of the research and will start with the review of the literature related to the domain of the research objectives with the purpose to identify a relevant conceptual framework as the foundation of this research, and to present a clear notion of my conceptual thinking for this doctoral dissertation. The literature review will draw knowledge from the management accounting area as well from paradox theory and organizational learning theory to conclude with a presentation of the conceptual model.

Stage 2

Stage 2 of this dissertation is the answering of the first sub-requestion of what is academically known, purposely and unintendingly, to assess a MCS being functional? Stage 2 is researched from three perspectives. The first perspective is to view MCS in MC context, as MCS is an instrument of MC in Chapter 4. Second, the functioning vs. functional debate in Chapter 5 as, according to the broad MCS definitions of seminal MCS authors, every organization has a functioning MCS. Third and final perspective in Chapter 6 MCS in the organizational context, as MCS needs to perform supporting organizational goals in a myriad of intra-, inter- and extra-organizational conditions.

Chapter 4 is the start of stage 2 of the research and reviews literature related to the first, of three, contextual MCS perspectives relevant for this research. Specifically, it will examine MCS literature in MC with the purpose to provide a broad conceptual analysis of major MC topics in which the MCS operates.

Chapter 5 will describe and debate the second of three, contextual MCS perspectives describing the functioning Vs. the functional phenomena. The review concludes clarifying the phenomena using a real-world metaphor.

Chapter 6 builds on the identified contextual gaps in the literature from the MCS perspectives in Chapter 4 and Chapter 5. In this chapter, the organizational context allows to complement the inner variables from in Chapter 4 and Chapter 5 and provide a comprehensive perspective of the outer variables (major themes) that are relevant for the completion of the conceptual map from known academic knowledge.

Chapter 7 represent and describes the ontological approach of the research where evidence is collected from practitioners with the purpose of knowing how practitioners assess a functioning MCS to be considered functional. The ontological approach of the case study research is relevant to retrieve knowledge from business practices that MCS researchers might not know but want to get and eventually communicate.

Stage 3

Chapter 8, the 3rd and final stage, will discuss the results. This discussion will be carried out with reference to the theoretical foundation of the study, the relevant conceptual framework with the purpose to draw the theoretical and practical meanings out of the results from stage two and three and abductively applied into the constructed map.

Chapter 8 will present a summary and the conclusions of the thesis. Specifically, it will draw the main conclusions of the study in reference to the research questions. The limitations of the study will be discussed, and areas suggested for future research.

Chapter 2. Methodology

Regardless of the design of the approach, the challenge is to identify the cases before the study begins
(Creswell & Creswell, 2018, p. 354).

Counter to the general trend in MCS research focusing on the individual or the interplay between a few MCS components, the approach in this research is holistic where multiple opposing perspectives need to be included. Hence, the purpose of this study is to understand what is known and unknown from academic understanding on assessing a functioning MCS to be considered functional in its naturalistic organizational setting, therefore justifying a qualitative approach. Another motivation for a qualitative approach is that this dissertation attempts to generate theory from collected data, both theoretically as from practice. That is fundamentally different from a quantitative approach where a deductive approach is focused on casualty and testing theory.

According to Creswell & Creswell (2018, p. 340), the qualitative researcher is required to educate the reader on the intent of the qualitative research, mentioning specific designs while carefully reflecting on the role of the researcher. The purpose of the research approach of this dissertation is not to locate the genesis of the MCS phenomenon of a functional MCS, but to provide a clear conceptual understanding associated with assessing a functioning MCS to be considered functional. The qualitative research approach in this dissertation includes the use of qualitative data, such as interviews, documents, and participant observation data, to understand the paradox phenomena (Saunders et al., 2019, p. 179) of a functional MCS.

2.1.   Operationalization of the research

The operationalization of the research in this dissertation has four distinct stages. ❶First is the identification of the conceptual framework that is used as a foundation for the conceptual map to assesses a functioning MCS. ❷The second stage is to answer the first sub-question. ❸The third stage to answer the second sub-question. ❹The fourth and final stage is the discussion of the conceptual map. The systematic approach of the operationalization is visualized in Figure 1.

Systematic literature review
by Saunders et al., 2019, p. 111

Stage 1
Conceptual foundation

Stage 2
Sub-Research Question 1

(1)
Location of
studies

(2)
Selection and
evaluation

(3)
Analysis and
synthesis

(4)
Reporting the
results

(5)
Themes

Conceptual map from
theoretical findings

Systematic coding
by Williams and Moser (2019)

| Open | Axial | Selective |

Stage 4

Stage 3
Sub-Research Question 2
(Multiple case study research)

(1)
Many pages
of text

(2)
Many segments
of text

(3)
30 - 40 codes

(4)
Codes reduced

5)
Themes

Conceptual map enriched with
knowledge from practitioners

Figure 1: The operationalization process of this Qualitative Research

The start of this research, stage 1, is a systematic literature review approach (Saunders et al., 2019, p. 111). However, because of the research paradox, as discussed in 1.4 Statement of the problem, of this dissertation the systematic literature review cannot be used in purity. The limitation of the MCS research is the dominant epistemological either/or thinking. In this stage, the systematic literature review must have a certain bandwidth of rigorousness to include the paradoxical (both/and) thinking from other research areas to identify and select a conceptual framework to research contradictory tensions between exploitation and exploration.

Stage 2 follows the rigorous five stage approach of the systematic literature review by Sanders et al., 2019, p 111, as it involves a similar systematic approach for the coding as proposed by Williams and Moser (2019) where the procedures are traceable. In this stage three distinct MCS areas are theoretically researched. ①MCS in MC context as MCS is an instrument of MC. ②The research debate on the meaning of a functioning MCS and the meaning of a functional MCS fit for its purpose. ③And the MCS operating

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in organizational context. The themes, and the codes, generated from this stage are the foundation for stage three, therefore builds on existing theory to identify what is known from theory related to the first sub-research question, following deductive research logic to conceptualize themes to assess a functioning MCS. The major themes of the research framework are a guideline for stage 3 conducting the case studies. The themes are used deductively as well as inductively to structure and analyze primary data from the cases studies and to identify factors, moderators to answer the second research question of "What can be learned from real-world experience to assess a MCS being functional? ".

Stage 3 answers the _second sub-research question_ and follows the qualitative inductive research logic of "*The Art of Coding and Thematic Exploration in Qualitative Research*" by Williams and Moser (2019) where they suggest that collecting data that needs to be assembled, categorized, and thematically sorted provide an organized platform for the construction of meaning.

The synthesis of the results from stage 2 and 3, into stage 4, requires abductive logic because of the process of systematic combining (Dubois & Gadde, 2002), as there is the search and identification of academically unknown variables from the knowledge of practitioners to describe the variables. Unlike the deduction and induction logic where the researcher's viewpoint is placed centrally, the practitioner's viewpoint is explained by the researcher in this stage of this research. Hence, this part of the dissertation is line with the subjective, interpretative epistemological stance bridging the ontological stance where the layering of reality is researched to identify variables and broad themes to assess a functioning MCS.

2.2. Systematic Literature Review (RQ1)

A systematic literature review (SLR) is "a systematic, explicit, and reproducible method for identifying, evaluating, and synthesizing the existing body of completed and recorded work produced by researchers, scholars, and practitioners" (Fink, 2007, p. 3). The purpose of the SLR is to minimize selection bias as the SLR researcher is likely to include only studies that are consistent with their personal opinion (Nightingale, 2009).

Multiple MCS scholars have conducted SLR's (Andersen & Lueg, 2017; Endenich & Trapp, 2020; Hristov et al., 2021; Jansen, 2018; Lueg & Radlach, 2016; Martyn et al., 2016; Pelz, 2019; Sageder & Feldbauer-Durstmüller, 2019; Wadan et al., 2019; Wolf et al., 2020), however rigorous uniformity in methodology and structure is limited. Hristov (2021), Wolf (2020), Lueg (2016), Sageder (2019), and Pelz (2019) explicitly refer to a SLR approach, however, they do not go into much detail as they allow themselves to adopt the interpretivist approach to conduct the SLR. This finding is similar to the critique that exemplar academic reviews from IS and Management has no uniformity in methodology and structure (Okoli, 2015).

Multiple SLR approaches are present in management accounting research. Historically, the rigid approach proposed by Tranfield et al. (2003) have been loosely applied by multiple MCS researchers (Andersen & Lueg, 2017; Lueg & Radlach, 2016; Sageder & Feldbauer-Durstmüller, 2019).

	A Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review (Tranfield et al., 2003)	**Research methods for business students, eight edition (Saunders et al., 2019).**
Multi-step approach	Stage I: planning the review Stage II: Conducting a review Stage III: Reporting and dissemination	1. Formulation review question 2. Location of studies 3. Selection and evaluation 4. Analysis and synthesis 5. Reporting the results
Comprehensive abstract	This paper evaluates the extent to which the process of systematic review can be applied to the management field in order to produce a reliable knowledge stock and enhanced practice by developing context-sensitive research.	The comprehensive approach includes research philosophies that help to make decisions on the research methodology meanwhile allowing for abductive research logic.
Evaluation for appropriateness for this dissertation	The approach highlights the challenges when not using an appropriate methodology. However, the emphasis is on the rigid instrumental use of the methodology with limited possibilities to the research potential opposing demands.	The approach proposed by Saunders et al. (2019) builds upon the approach by Denyer & Tranfield (2009), however the approach by Saunders et al. (2019) allows for conclusions for what is known and not known, allowing a bandwidth of research rigidness.

Table 1: Systematic Literature Review methods

The motivation to use the SLR approach by Saunders et al. (2019) is that the purpose of the SLR is to locate and evaluate academic knowledge on assessing a functioning MCS meanwhile to demonstrate my broad knowledge and thorough understanding of MCS theory. Unintentionally, the SLR approach by Sanders et al. (2019) underscores the literature review paradox (R. Kumar, 2011, p. 58). On the one hand, the literature review plays a role in the conditioning of the thinking about the research problem. On the other hand, the literature review cannot be undertaken without some idea of the problem that I want to investigate. The same paradox is present in multiple literature reviews and SLR's in MCS research as the practical screen is a rather subjective part of the literature review (Okoli, 2015).

The Systematic Literature Review conducted for stage 1 and stage 2 is a comprehensive pre-planned strategy to locate existing literature, evaluate the contribution, analyze and synthesize the findings and report the evidence to allow conclusions to be reached out about what is known and, also, what is not known (Denyer & Tranfield, 2006; Saunders et al., 2019, p. 110). The Systematic Literature Review in this dissertation serves five purposes.

1. The first purpose is to identify and articulate a conceptual framework for stage 1 that can align the ontology, methodology and epistemology (Berman & Smyth, 2015) of my doctoral research in constructing a conceptual map to synthesize what is academically known and unknown assessing a functioning MCS to be considered functional. The literature review shares the results of other studies that are closely related to the one being undertaken, filling in gaps and extending prior studies as it provides a framework or reasons that are the foundation (Creswell & Creswell, 2018) of this dissertation on what is academically known and unknown of assessing MCS being functional for writing the scholarly literature into a study.

2. The second purpose is to demonstrate my knowledge about MCS research including vocabulary, theories, key variables and phenomena, and its methods and history, and of the influential researchers and research groups in the field (Randolph, 2009).

3. The third purpose is that it helps determining whether this topic is worth studying, and it provides insight into ways in which the researcher can limit the scope to a needed area of inquiry (Creswell & Creswell, 2018).

4. The fourth purpose is that the systematic review, following a specific methodology, locates existing studies, selects and evaluates contributions, analyses and synthesizes data, and reports the evidence in such a way that allows reasonably clear conclusions to be reached about what is and is not known about my topic (Denyer & Tranfield, 2006).

5. The final and fifth purpose is to identify and generate key themes and coding for the conceptual map to assess a functioning MCS to be considered functional. Themes generation and coding is the most recognized and used analysis method for qualitative empirical material (Rashid et al., 2019). The advantage is that it is a method rather than a methodology providing me with flexibility in usage, as a method is not tied to a particular epistemological or theoretical perspective (Maguire & Delahunt, 2017).

The five stage approach (Saunders et al., 2019, p. 111) allows for critiquing, critically appraise, analyze and synthesize representative MCS literature in an integrative manner.

1. Formulation review question	2. Location of studies	3. Selection and evaluation	4. Analysis and synthesis	5. Reporting the results
Clearly identification of the purpose and intended goals of the review. Review question developed using CIMO acronym: Context – The individuals, relationships, or wider settings being researched Intervention – The effects of the events, actions or activities being researched Mechanisms – the mechanisms that explain how the intervention (within the context) results in the outcome.	Locate and generate a comprehensive list of potentially relevant research studies	Known as screening for inclusion, this step requires that the reviewer be explicit about what studies were considered for review, and which ones were eliminated without further examination (a very necessary part of any literature review). For excluded studies, the reviewer must state what the practical reasons were for their non-consideration and justify how the resulting review can still be comprehensive given the practical exclusion criteria.	Breaking down each study into its constituent parts and recording the key points on a data extraction form. Using the data extraction forms to explore and integrated the studies and answer the specific review questions.	An introductory section that states the problem and review questions A methodology section that provides precise details of how the review was conducted. Findings and discussions sections that review all the studies, specifying what is known and what is not known in relation to the review questions.

Figure 2: Steps for a systematic literature review by Saunders et al., 2019, p.111

The formulation of the review question [1] is explicitly described at the start of each stage in the prospective chapter in this dissertation. In the search for locating the studies [2] the reviewer needs to be explicit in describing the details of the literature

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search and needs to explain and justify how the comprehensiveness of the search was assured.

The selection and evaluation [3] is practical the screen for inclusion to explicitly describe what studies are considered for review and which ones are eliminated without further examination.

The screening for exclusion of which articles are of sufficient and insufficient quality to be included in the [4] analysis and synthesis. In this step, a cursory analysis is performed to identify elements/components/variables in the abstracts.

The reporting of the result [5] is explicitly described and motivated at the start of each stage in the prospective chapter in this dissertation.

2.3.   Cross case study (RQ2)

The third stage of this research is conducted by executing qualitative research collecting data from practitioners following a case study approach. The case study approach allows for examining contemporary real-life situations and provide the basis for the application of ideas and extension of methods (Kothari, 2004).

The case study approach provides a source of well-grounded explanations of processes occurring in local contexts (Baškarada, 2014; Yin, 1981a), providing for rich explanations and is used to examine MCSs (Caputo et al., 2017; Laguir et al., 2019; Mundy, 2010; Pernot & Roodhooft, 2014) and is considered appropriate for exploring and understanding specific topics as it provides access to deeply felt but rarely articulated MCS evaluation variables (Eisenhardt & Graebner, 2007; Gibbert, 2008).

Dubois and Gadde (2002) consider abduction as especially suitable for case studies in business research. Rashid (2019) confirms that case studies are suitable for exploring business utilizing a case study approach. This study will utilize a multiple case study method as the relevance of the phenomenon is not limited to a single occurrence,

whereas a single-case design is appropriate, requiring an in-depth exploration of the phenomenon (Rashid et al., 2019).

Case studies are "an exploration of a 'bounded system' of a case or multiple cases over time through detail, in-depth data collection involving multiple sources of information-rich in context" (Creswell & Creswell, 2018, p. 62). The case study approach of broadening the MCS research arena have been used by MCS researchers (Albertini, 2019; Arjaliès & Mundy, 2013; Chowdhury & Shil, 2020; De Ribeiro Campos et al., 2019; Hosoda, 2018).

The case studies in this research may not answer the main and sub questions entirely, but it will give indications and further elaboration on the functioning versus functional discussion, and is relevant following Yin's (2003) considerations:
1. *the boundaries are not clear between the phenomenon and context;*
2. *the behavior of those involved in the study cannot be manipulated;*
3. *to cover contextual conditions that are believed to be relevant to the phenomenon under study.*

The design intends to gain multiple perspectives on variables of the conceptual framework that impact the functioning versus functional debate. The multiple perspectives are of interest for both their uniqueness and commonality; therefore, hearing the stories and learn from real-world experience to collect qualitative evidence to:
1. *Identify academically unknown factors participants use to assess their functioning MCS being functional or not;*
2. *Understand how the participants asses their functioning MCS to be functional from multiple perspectives;*
3. *Check the validity of the factors that participants mention.*

A concern is that the multiple case study lacks rigor. To address this problem, a rigorous protocol is in place that guides the administration and implementation of the interviews, ensuring consistency across the cases and increasing the findings' reliability. The purpose of the protocol is to maximize the conditions related to design quality

(construct validity, internal validity, external validity, and reliability), addresses ethical considerations, and to ensure the quality of the investigation:

1. Cross Case study protocol including a cross-case data analysis strategy following replication logic analysis of pattern matching.

    i. The within-case protocol including data collection and a thematic data analysis strategy;

    ii. 2 semi-structured interviews per case to collect multiple perspectives.

Semi-structured interviews

The data collection method in this research is semi-structured interview as it is a flexible and powerful tool to capture the voices and the ways people make meaning of their experienced learning (Rabionet, 2011) and allows the research to find evidence for more detailed responses where the respondent is asked to clarify what they have said (Gray, 2005, p. 214). For this study, two semi-structured interviews per case will be conducted. This increases the internal validity of the results and provides a fuller idea of the organization's viewpoint on this research theme.

Characteristics of valid respondents

Two interviews per organization are the inclusion criterium to be included in this research.

1. The first respondent is a decisionmaker of the organization responsible for the formulation, planning of the organizational strategies.
2. The second respondent is a manager who is situated in the central area of management control dealing with formal and informal control mechanisms.

Protocol semi-structured interview

The two semi-structured interviews have their protocol to reduce bias that may be caused by respondents (Yin, 1981b). Case study protocol is a formal document capturing the entire set of procedures involved in the collection of empirical material (Yin, 1981a).

The interview protocol includes room for the identification for emergent criteria (R. Kumar, 2011).

The interviews are recorded using a mobile recording device and a laptop. In preparation for each interview, I assured electricity availability (power plug and/or batteries) and supplies for notetaking. Before each interview, the recording devices are test for proper functioning avoiding the case of not recording of the interview. A concern with a semi-structured interview is internal validity (to research what is intended to be researched). To omit concerns of low validity, prompt cards are used. These contain the variables from the conceptual framework and input from the systematic literature research. When the known factors are addressed by the respondent, the research can use the prompt card for the respondent to expand and elaborate on their initial responses.

To maximize time availability of the respondent per organization, facts and characteristics of the organization are collected with the purpose of not having to ask the respondent regarding readily available information. Relevant information is incorporated in the questions and printed on prompt cards for the researcher to use during the interviews:

- o Strategic objectives as derived from documents, websites, and external sources like newspapers;
- o It-based information systems in use within the organization known by the researcher when the respondent was informally asked to participate;
- o The results from the systematic literature review as a structure for conversation purposely guiding the respondent. This aids in increasing the validity of the research as to research what is intended to research (as mentioned earlier in this sub-chapter).

The order of the question may change depending on the direction the interview then takes from the structured approach to a 'surprising' direction that may occur, allowing for unanticipated real-world perspectives to expand on their answers exploring subjective meanings allowing diversion into new pathways which helps towards meeting the research objectives.

Interview questions

The structure of the semi-structured interview design contains two components (Rabionet, 2011): (a) how the interviewer introduces himself to the person being interviewed and (b) what are the questions to be asked. The first component is very important to establish rapport, create an adequate environment, and elicit reflection and truthful comments from the interviewee to elicit the "stories". The second important and central component of this stage is the development of the questions and follow-ups. The interview protocol and the questions for this research are tailor-made. The formulating of the research questions is guided by discussion pointers (Rashid et al., 2019) to focus the research questions "What was I looking for?" ensuring validity.

Interview questions respondent 1 (one)

Before beginning with the semi-structured interview, the researcher will introduce himself, thanking the respondent for the signed consent form and clarifying the research context. The interview consists of seven questions divided in three sections. The first section introduces the research topic while maximizing validity, measure what it was intended to measure. The respondent is guided by first asking for the strategic direction of the organization and the progress of achieving it.

The second section contains questions asking about the criteria used for assessing the functioning and the MCS being functional for supporting strategy execution. The prompt cards will be used actively by the researcher, ensuring to maximize validity.

The third section is the concluding question.

Interview questions respondent 2 (two)

The second interview protocol consists of seven questions divided into three sections. The first section introduces the research topic while maximizing construct and internal validity. I introduce myself, thanking the respondent for the signed consent form and clarifying the research context. The purpose is to compare the practitioner perspective of being involved in the process of strategy execution and to measure what it was intended to measure. The respondent is guided by first asking for the strategic direction of

the organization and the perception of achieving the intended objectives. The section includes questions about the functioning of their IT-based information system as a structure for conversation and to assess the functioning MCS. The second section includes questions about the user's perception of the functioning and the MCS being functional for supporting strategy execution. The final section contains concluding questions.

Informed consent form

An informed consent form will be at the basis with strict guidelines guaranteeing privacy of clients and employees and assuring compliance to Dutch information regulations and the code of ethics by The European Business University. However, a critical note is that not each interview has a signed informed consent form. Each interview (11 in total) is recorded. However, 2 interviews were conducted online due to COVID restrictions during the period of the field research. Table 13: Characteristics of the invited case organizations on page 98 mentions which interviews were conducted online or onsite and which have a signed consent form.

2.3.1. Unit of analysis

As the intent is to gain multiple perspectives in assessing MCS being functional, this study will use the maximum variation sampling strategy (Saunders et al., 2019, p. 321) containing cases from multiple industries. To achieve this, multiple organizations from different industries will be recruited to participate, providing the maximum variation possible in the data collected. In case studies, scholars have suggested using at least 2 to 4 but no more than 10 to 15 cases (Yin, 1981a). As there is a small sample size, the cases are selected on the basis of high expectations for their information content (Cavaye, 1996) in order to maximize the utility of the information.

Following the small sample size suggested by Yin (1981), a minimum of 3 (three) cases with a maximum of 6 (six) will be researched. In preparation for this research, multiple organizations from different industries have been informally asked to participate to guarantee the minimum number of three organizations. The characteristics of the

industry and organization are described in table 2. For privacy reasons, the names of the respondents are not mentioned.

2.3.2. Inclusion criteria

Multiple inclusion criteria are used for organizations to participate in this research. [1] The organization must have a revenue minimum of €100 million as this size organizations are likely to impact the inter- and/or extra-organizational context if a functioning MCS has become dysfunctional (Henri, 2006; Pondeville et al., 2013), meaning discontinuity of the organization or a negative impact on its direct environment like the cases in Chapter 1 Introduction. [2] The organizations have a functioning IT-based control system and control mechanisms in place. To evaluate the criterium of the organization having an IT-based information systems, this is asked during the interview and by desk research. In preparation of the interviews an online search was conducted among vendors of IT-based systems, as their website are a rich data source as they regularly publish cases for commercial purposes, which include the organization included in this research. [3] The organizations must have a clear position in their respective broader societal context. E.g. the largest national organization, locally on the largest employers, listed in the top 10 of largest in their sector. [4] The organizations must be based in The Netherlands due to the limitations of the capabilities of the researcher.

2.3.3. Cross-case analysis

The cross-case analysis will be conducted following the cross-case protocol finding meaningful parallelism to assure repeatability and increase reliability. These approaches have been suggested as helpful strategies to increase external validity (Gibbert, 2008; Yin, 1981a). Gibbert (2008) described what passes as a rigorous case study following a framework for a methodological rigor for case studies following four validity and reliability criteria. In Table 2: Gibberts (2008) case study framework for methodological rigor the steps and the protocols used in this research to pass Gibberts approach of rigorous case study.

Gibberts (2008) framework for an Investigation for the methodological Rigor of Case Studies and the approach in this study

1.	Internal validity	Research framework explicitly derived from literature Systematic Literature review.	The conceptual framework used in this research is described in chapter Chapter 3.
2.	Construct Validity	Case study protocol including data analysis strategy with an indication of data collection circumstances (Explanation how access to data has been achieved) Interview protocol for the first and second respondents	The protocols are described in Appendix B: Cross Case and case study protocol and Appendix C: Interview protocol
3.	External Validity	Cross case analysis Rationale for case study selection Details on case study context	
4.	Reliability	Case study protocol how the entire case study will be conducted	

Table 2: Gibberts (2008) case study framework for methodological rigor

2.4. Ethical considerations

It is appropriate to acknowledge ethical consideration for this dissertation. Ethical considerations can be considered problems beyond common everyday risk. All the participants in my research were treated in accordance with the ethical guidelines of the European Business University's (EBU). According to the ethical guidelines of EBU, every caution is taken to ensure that the participants in this study felt safe, comfortable, and had the freedom to withdraw from the study if they felt the need to so.

Interviews, transcription, and analyses are conducted in Dutch, the results are translated into English. The first ethical consideration is that the translation must be done with a wakeful eye to the researcher's language choices in capturing, translating, analyzing, and representing narratives of experiences of the participants (Yi Li, 2011). A

second consideration is that three of six organizations in the research population are customers of the company that I own. The respondents employed with these organizations are not naive concerning issues of power and privilege as there is a customer–consultant relationship. For that purpose, an equal number of organizations are included in the research population that I do not have a customer–consultant relationship with. These considerations are incorporated during the research and addressed in the research protocols.

Chapter 3. A conceptual map to assess a MCS

Subsequent evidence suggests that a dissertation which has no conceptual framework is unlikely to gain a pass as examiners place importance on the significance, role, and use of conceptualization in a doctoral dissertation (Leshem & Trafford, 2007).

The purpose of this chapter is to present a clear notion of my conceptual thinking for this doctoral dissertation. The conceptual framework is at the heart of this dissertation so that the research goals are clearly scaffolded, questions clearly framed, and the identified themes and codes are unilaterally practiced in my abstract thinking (Berman & Smyth, 2015). The conceptual framework that I use in this dissertation allows for critically examine experiential knowledge and provide a solid foundation for the implementation of interdisciplinary research at a distance from EBU university and faculty mentors (S. Kumar & Antonenko, 2014).

3.1.   An abductive systematic literature review

This section of this chapter explicitly describes the process of finding and revealing a conceptual framework with the purpose to synthesize multiple theoretical perspectives that are situated within aspects of the research problem and to provide a basis for theorizing a structured map to assess a functioning MCS to be considered functional. The systematic literature review method by Saunders et al., 2019, is at the heart of the search. However, absolute inductive clarity in the methodology in the search for a relevant framework, as a foundation of the conceptual map, is not present in this chapter. The systematic literature review evolved into a literature search with an ontological approach. Expanding the scope of the systematic literature search was a necessity to include the paradoxical (both/and) thinking where seemingly contradictory tensions exist between exploitation and exploration. The abductively applied method (Saunders et al., 2019, p. 111) of finding and selecting a relevant conceptual model is visualized in Figure 3 and described next.

3.1.1. Systematic literature review

The start of the literature search followed the methodology by Saunders et al., 2019. The first step in the methodology is the location of the studies. A Google Scholar search is conducted using the keyword "Management Control Systems " for the period of 2000 to 2020, which resulted in 38,000 hits.

The second step in Saunders et al., 2019 methodology is the selection and evaluation of the studies. In this step, the titles were examined using the inclusion criteria that (1) the title should contain the keywords "Management Control Systems," (2) reference in the title that indicate evaluations of MCSs, and (3) words in the title like effective, efficiency, or a reference to either one or (4) a reference to potentially opposing perspectives with words like balancing, two types of, or (5) a hint of a novel MCS research direction with words like new, trends, uncertain, modeling. 62 articles were deemed relevant to include in the quality appraisal for the third step.

The cursory analysis and synthesis (step 3) of the abstracts, did not produce a framework relevant for this dissertation, even though MCS is a well-researched Management Accounting concept. Well-researched MCS frameworks by Simon's *Levers of Control*, Merchant's *Control Tool Classification Framework*, and P*ackages of Control* by Malmi & Brown, Anthony's *Management Planning and Control Systems*, and Otley's *Performance Management Framework* (Hartmann et al., 2021; Malmi & Brown, 2008; Martyn et al., 2016; Otley, 1995) provide some assistance for this dissertation but insufficient structure to research the paradoxical perspectives dealing with dynamism and opposing demands.

The underlying motivation of this conclusion is that MCS research is focused mainly on formal MCS components and its linkage between the components with limited research on informal MCS components. The second limitation in MCS literature is the theoretical lens of MCS research underscoring the mechanistic trade-off (either/or) thinking with static research approaches that is guided by the predominantly

epistemological research stance. MCS originates from management accounting where traditionally the research is focused on the explaining or clarifying the exploitation of organizational activities within a model, reporting 'reality' in a compliant manner. The third limitation is that dealing with the temporal shifting of strategies, and the complex layering of organizational reality, is largely ignored in MCS research. The fourth limitation is that MCS research follows pre-dominantly inductive and deductive research logic, focusing on the researcher's perspective. Therefore, ignoring practitioner's perspective where abductive research logic is relevant as to capture the knowledge from the practitioner to potentially generalizable academic theory. As mentioned in chapter 1.1.1 Motivation from theory and practice, the first motivation for this dissertation topic is the call for "studies by academics who are better connected with the world of practice (Merchant & Otley, 2020)". To bridge the gap between academics and real-world practitioners, this chapter allows for the interpretivist approach where academic subjectivism is allowed to increase the bandwidth of methodological rigidness to abductively expand the literature search to other research areas.

One of the 62 (sixty two) selected academic articles provided a research avenue. The academic article of *Management Control Systems and Organizational Ambidexterity* (Gschwantner & Hiebl, 2016). The research by Gschwantner & Hiebl (2016) is based on 16 (sixteen) relevant academic papers who purposely or unintendedly included ambidexterity in their research in which they find the use of opposing management controls that can produce a complementary effect supporting opposing organizational objectives. The theoretical lens of their research connects the management accounting research field with paradox theory (e.g. opposing demands), and organizational learning (e.g. organizational strategy and behavior) where the outcome of research can be uncertain and less tangible like innovation and opportunity seeking behavior.

By extending the MCS research area with organizational learning and paradox theory, I discovered that the concept of ambidexterity is at the heart of my research problem, as ambidexterity allows for the dualistic debate of opposing perspectives, including the temporal effects of dynamism. Organizational learning and paradox theory opened the research pathway to include temporal effects, antecedents and moderators to

describe the opposing demands of a functionally functioning MCS. The opportunity, provided by this research avenue pathway, is a conceptual direction of researching opposing demands as a structured approach for stage 2 to answer the first sub-question of "What is academically known to assess a MCS being functional?".

The re-start of the systematic literature review is conducted with a search in Google Scholar using the keyword "Ambidexterity AND Management Control Systems" with no limitation for the period. The Google scholar search resulted in 31,300 hits, with the research paper of Gschwantner & Hiebl (2016) as the first hit.

The second step in Saunders et al., 2019 methodology is the selection and evaluation of the studies the inclusion criteria that (1) the title should contain the keywords "Management Control Systems" or a reference in the title that indicate relevance to the subject of Management Control in (2) relation to ambidexterity. The search resulted in 4 academic papers.

	Title, researcher, year published	Journal
1.	Institutional ambidexterity and management control: The role of religious, communal and political institutions (Diab & Mohamed Metwally, 2019)	Qualitative Research in Accounting and Management
2.	Achieving contextual ambidexterity in R&D organizations: a management control system approach (McCarthy et al., 2011)	R&D Management
3.	Top management teams' shared leadership and ambidexterity: the role of management control systems (Umans et al., 2020)	International Review of Administrative Sciences
4.	Mediating Effect of Management Control Systems in The Interaction Between Ambidexterity and Organizational Learning in Brazilian NPO (Arantes & Soares, 2021)	Journal of technology management & innovation

Table 3: The search for MCS AND Ambidexterity

The four articles and in parallel, the research paper of Gschwantner & Hiebl (2016) are studied with the purpose to abductively search for a relevant framework. Worth noticing is that the earliest publication year of the 5 (five) academic papers is 2011. The ambidexterity concept can be considered a novel research paradigm in the MCS area.

The research papers of McCarthy et al. (2011), Umans et al. (2020) and Gschwantner & Hiebl (2016) referenced the framework by Raisch & Birkinshaw (2008). The conceptual framework, that is used as the foundation for the remainder of this research, is to me a reference to align epistemology, ontology, and methodology underlining the interpretivist approach, rather than "one reality" of positivism (Greener, 2008, p. 17) as described in chapter 2.1. Operationalization of the research. The conceptual framework in this dissertation prompts considerations to other research and allows the justification of the conceptual map. The research framework by Raisch & Birkinshaw (2008) is borrowed and adapted in this research and discussed and presented in chapter 3.3.

The described process in this sub-chapter of the systematic literature and the re-started abductive systematic literature review is visualized in Figure 3.
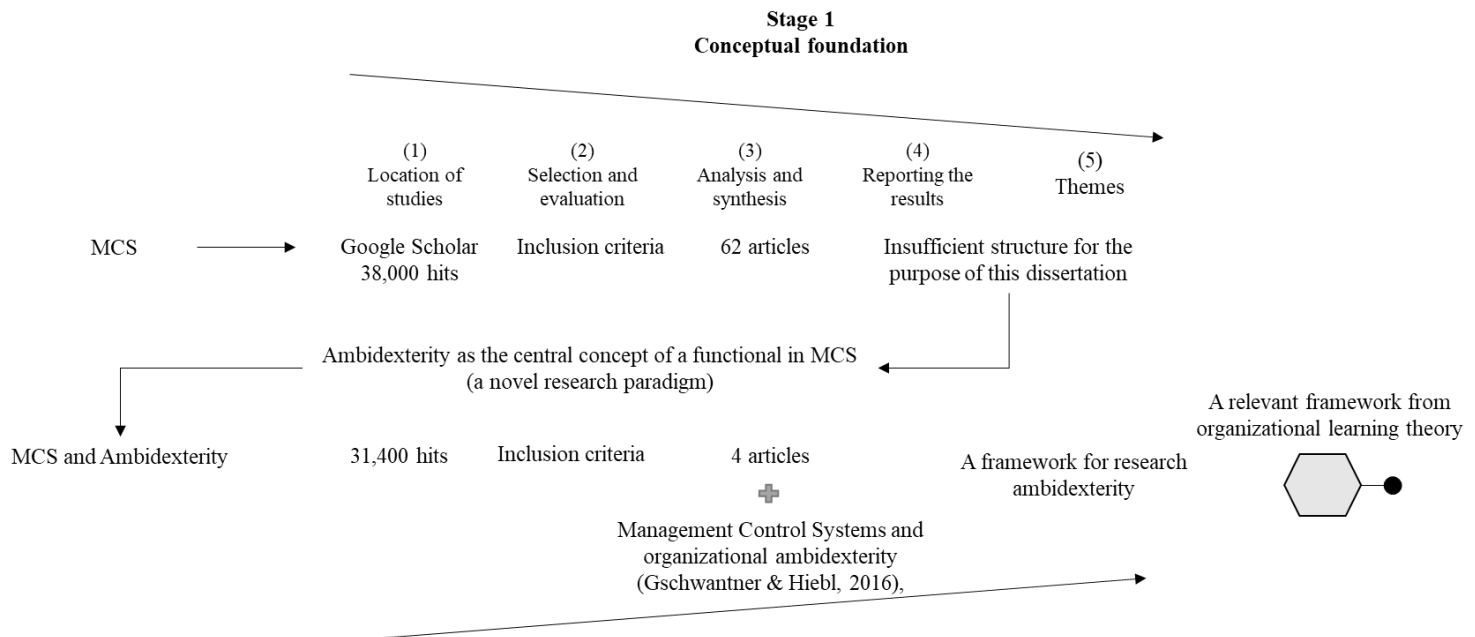
Figure 3: The abductively applied systematic literature review

3.2. Ambidexterity as the central concept of a functional MCS

The purpose of this research is not to research ambidexterity. However, the theoretical concept of paradoxical thinking and the concept of ambidexterity must be clear before proceeding with this research. This sub-chapter first debates the paradox and ambidexterity concept borrowed from paradox and organizational theory in the context of the functioning vs. functional MCS debate.

3.2.1. The paradox of opposing demands

The paradox[1] of opposing demands is best explained and discussed with the concept of ambidexterity. Ambidexterity represents a paradox as it requires to simultaneously address opposing demands: focus versus experimentation, efficiency versus flexibility, refinement versus search, consistency versus divergence (Bedford et al., 2019). Ambidexterity provides a theoretical lens on the seemingly contradictory tensions in MCS research and illuminating the MCS research paradigm from mechanistic trade-off (either/or) to paradoxical (both/and) thinking.

First the concept of paradox: some 'thing' that is constructed by individuals when oppositional tendencies are brought into recognizable proximity through reflection or interaction (Westenholz, 1993). Paradoxical tensions are perceptual—that is, cognitively or socially constructed polarities that mask the simultaneity of conflicting truths (Lewis, 2000).

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[1] "Paradox" denotes contradictory yet interrelated elements—elements that seem logical in isolation but absurd and irrational when appearing simultaneously (Lewis, 2000, Academy of Management Review, p 760)

Tensions	Reinforcing cycles	Management
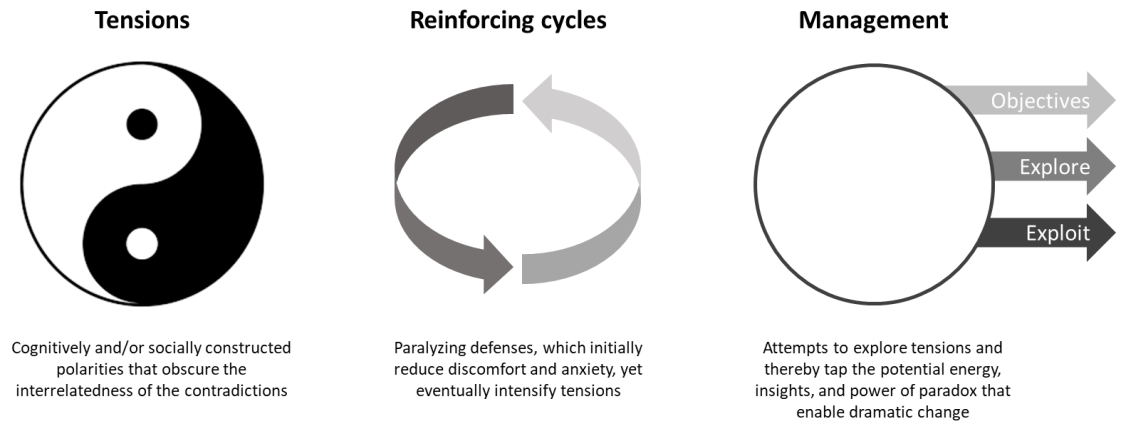
Figure 4: A paradox Framework (Lewis, 2000)

The paradox framework (Lewis, 2000) helps this research to guide the ambidexter explorations of a functional MCS of paradoxical (both/and) thinking as supposed to the conventional mechanistic trade-off (either/or) in MCS research. It must be clear that exploitation and exploration compete for the same scarce resources and attention, sustaining an optimal mix of exploitation and exploration, which is enormously challenging, and involves some potential tradeoffs (Simsek et al., 2009) that influences the working of a MCS.

Ambidexterity in MCS research is gaining attention (Bedford, 2015a; Bedford et al., 2019; Demartini & Otley, 2020; Gschwantner & Hiebl, 2016; Hanzlick & Brühl, 2013; Kruis et al., 2016) as MCS researchers discuss each other either/or and both/and thinking and are, unintentionally, clear that successful organizations in a dynamic environment are ambidextrous. The ambidexter logic of opposing demands is consistent with several MCS studies of contradictory tensions of individual MCS components (Bedford, 2015a; Frezatti et al., 2017; Henri, 2006; Mundy, 2010), debating the design and use (Arjaliès & Mundy, 2013; Escofet, N.C., Rosanas, J. M, 2012; Ferreira & Otley, 2009; Zanibbi, 2011; Zanin & Costantini, 2018), and the packages versus the systems debate (Demartini & Otley, 2020; Grabner & Moers, 2013; Merchant & Otley, 2020; Rehman et al., 2018).

In both the management accounting and organization research area, there is increasing interest in the antecedents and consequences of ambidexterity, though there is considerable ambiguity and disagreement regarding the theoretical construct (Simsek et al., 2009). Geschwanter & Hiebl (2016) propose that MCS may be able to foster organizational ambidexterity. This is confirmed by Tarody (2016) concluding that without exploiting existing business models, organizations cannot afford to invest in the future and sustain stability and steady performance.

Ambidexterity provide a paradoxical lens to research the opposing perspectives of MCS research philosophies and the opposing demands that practitioners face as contradictory yet coexisting demands are salient and persistent in MCS research and in practice (Lewis, 2000). Ambidexterity is viewed as an emerging research paradigm in organizational theory (Raisch & Birkinshaw, 2008), and is used to research complex organizational phenomena (Simsek, 2009; Simsek et al., 2009). Organizational ambidexterity refers to the ability of an organization to both explore and exploit (O'Reilly III & Tushman, 2013). The concept of ambidexterity is the core concept in this dissertation to assess a functioning MCS to be considered functional. Organizational ambidexterity requires an organization to reconcile internal tensions and conflicting demands in their task environments (Raisch & Birkinshaw, 2008) which in this dissertation is considered called similar to the opposing demands of a functional MCS.

Exploitation and exploration are two fundamentally different learning activities between which firms divide their attention and resources (March, 1991). Exploitation is associated with activities such as "refinement, efficiency, selection, and implementation", and exploration refers to notions such as "search, variation, experimentation, and discovery". March (1991) argues that organizations need to be aligned to both exploitation and exploration as focus on exploitation may enhance short-term performance, but it can result in a competency trap because firms may not be able to respond adequately to environmental changes (Raisch & Birkinshaw, 2008). In fact, organizations and in the individuals in them often improve their performance over repetitions of the same tasks (Levinthal & March, 1993, p. 96).

Conversely, too much exploration may enhance a firm's ability to renew its knowledge base but can trap organizations in an endless cycle of search and unrewarding change (Raisch & Birkinshaw, 2008). And when a firm is able to maintain a perfect balance between the two activities, the firm run the risk of being mediocre at both (March, 1991). The concept of ambidexterity has been extensively used to broadly refer to an organization's ability to perform differing and often competing strategic activities at the same time (Simsek et al., 2009).

"Organizational ambidexterity refers to the ability of an organization to both explore and exploit—to compete in mature technologies and markets where efficiency, control, and incremental improvement are prized and to also compete in new technologies and markets where flexibility, autonomy, and experimentation are needed (O'Reilly III & Tushman, 2013)"

O'Reilly III & Tushman (2013) suggests that organizations that achieve a certain level of organizational ambidexterity have shown a positive effect on sales growth, innovations, subjective ratings of performance, and firm survival. Although organizational ambidexterity may, under some conditions, be duplicative and inefficient, the empirical evidence suggests that in uncertain environments, organizational ambidexterity appears to be positively associated with increased firm innovation, better financial performance, and higher survival rates. The ambidexterity concept presented in box perspective in Figure 5: The box presentation of the ambidexter concept.

| organization's ability to be aligned and efficient in its management of today's business demand | →Exploitation→ | Ambidexterity | →Exploration→ | adaptive to changes in the environment |
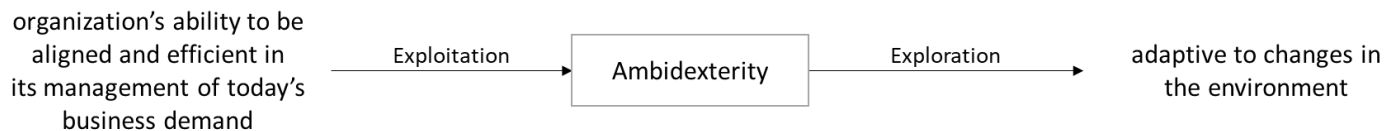
Figure 5: The box presentation of the ambidexter concept

3.2.2. Functionally balancing the ambidexterity scale

It is clear that a functional MCS must foster organizational ambidexterity for organizations to be successful in their strategy execution (Gschwantner & Hiebl, 2016).

For a MCS to remain functional, it must be able to horizontally shift between exploitation and exploration, finding the right position on the ambidexterity scale. MCS and strategy execution cannot be seen standing on their own as there is a continuous paradoxical tension between adapting to external threats and exploring opportunities while exploiting existing business models with innovations and structural alignments (Taródy, 2016). Ambidextrous firms need to develop paradoxical cognitive frames that allow them to "not only recognize, appreciate, and embrace distinctions and contradictions between strategic agendas but also resist the natural inclination to reduce, suppress, or eliminate those distinctions (Bedford et al., 2019).

The ambidexterity requirement for a MCS to remain functional is confirmed in MCS literature, where the influences of organizational dynamics are researched on the effectiveness and efficiency of the MCS (Adhi Nugroho & Hartanti, 2019; Agbejule & Jokipii, 2009; Cater & Pucko, 2010; Chong & Mahama, 2014) to achieve long-term prosperity exploitatively.

3.3. Systems balancing opposing demands

3.3.1. Opposing yet coexisting demands of mechanistic systems

The perspective of the IT-based mechanical engineering systems is relevant for this research as a system is defined as a collection of interacting components (Zak, 2003) where the output of the system can be easily measured. This is best explained using a box representation.
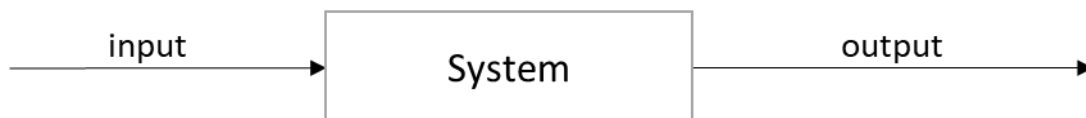
Figure 6: Representation of a system, mechanistically

The mechanistic perspective of engineering systems specifies inputs that force the system states or outputs to behave with time in some prespecified, specifically designed, manner. The mechanistic approach is dominant in MCS research logic as the epistemological stance is that the MCS, or its individual components, are to produce a formalized output (P. S. Adler & Borys, 1996). The mechanistic approach is confirmed in

early MC and MCS research (Flamholtz et al., 1985; Ouchi, 1979) and followed up on in more recent research (Merchant & Otley, 2020). That is, we are interested in *controlling* the system states or tangible outputs of the MCS. The mechanistic logic limits the capturing of intangible outputs as they can be unpredictable or uncontrolled, and therefore difficult to rationalize in a mechanistic approach. MCS researchers regularly refers to the mechanistic perspective as the *formal* system (Coller et al., 2018; Eldridge et al., 2014; Martyn et al., 2016).

3.3.2. Opposing yet coexisting demands of organic systems

An organic perspective is to define a system as a set of things, that are interconnected in such a way that they produce their own pattern of behavior over time (Meadows, 2008, p. 2). That is, the organic set of things produce their own results, using the system components from a practical understanding without the necessity for controlling outputs.

inflow → Stock → outflow

Figure 7: Representation of a system, organically

Stock is the memory of the history of changings flows within the system and changes over time through the actions of a flow. Organizational stock are the informal behavioral capacities that are complex, causally ambiguous, widely dispersed, and quite time-consuming to develop (Gibson & Birkinshaw, 2004). Mechanistically this can be viewed as complex as an organic system contains multiple pathways and redundancies, and is more stable and less vulnerable to external shock than a uniform system with little diversity (Meadows, 2008, p. 4). MCS researchers regularly refers to the organic perspective as the *informal* system (Grabner & Moers, 2013; Laguir et al., 2019).

The mechanistic perspective can be interpreted as the formal organizational opposition that a functional MCS needs to support when balancing the opposing demands of the organizational ambidexterity. The organic perspective can be interpreted as the behavioral opposition within the organization when balancing the opposing demands of

the organizational ambidexterity. This is visually presented in Figure 8: Opposition in coexisting systems.

Opposition in the formal (mechanistic) system

input

inflow

Collection of interacting components
forcing system states or outputs

Memory of the history of changing flows

output

outflow

Opposition in the informal (organic stock) system
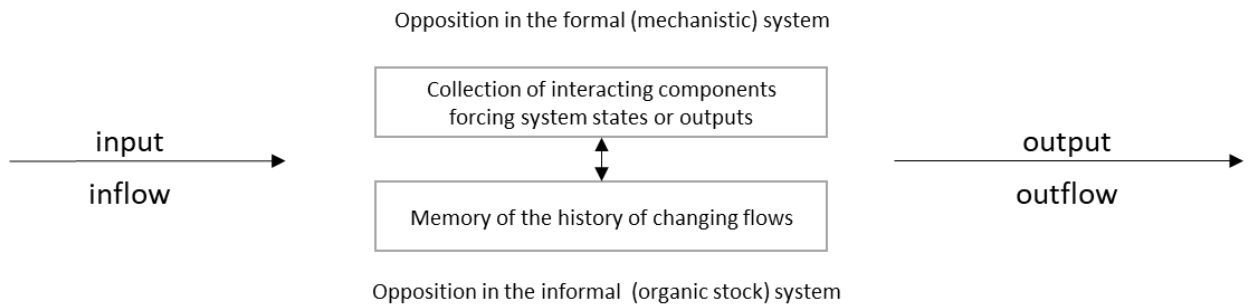
Figure 8: Opposition in coexisting systems

3.4. Juxtaposing opposing yet coexisting systems

The challenge of the conceptual framework for this research is that the opposing, yet coexisting demands of the informal system should be in harmony with the formal system to achieve an outcome (Leadbeater & Winhall, 2022). The research challenge of this dissertation can be used as an opportunity for systematic combining of a nonlinear, path-dependent process of combining efforts with the ultimate objective of matching theory and reality (Dubois & Gadde, 2002).

Exploitation

Exploration

Formal

Opposition in the formal
(mechanistic) system

Informal

Opposition in the informal
(organic stock) system
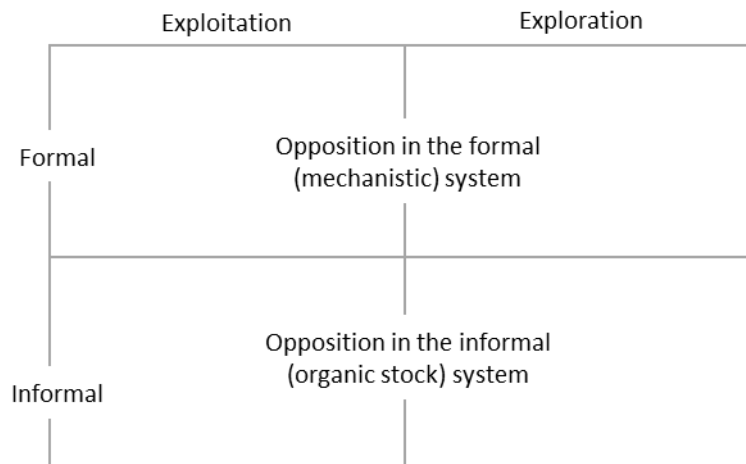
Figure 9: Juxtaposing opposing yet coexisting perspectives

The opportunity is a research avenue by juxtaposing the oppositions in the informal and formal systems with the opposing ambidexterity demands. The conceptual research framework of this dissertation highlights the challenge of a continuous balance

of the duality of the opposing perspectives underscoring the paradox of a functional MCS. The research avenue allows to include temporal dynamics in the variables of organizational antecedents, environmental factors and moderators in the framework by Raisch & Birkinshaw (2008).

This dissertation adopts the organizational research perspective of Gibson & Birkinshaw (2004), because of the recognition of the role of the processes and systems in each context in achieving the desired balance between opposing organizational demands facilitating strategy execution. Their perspective illuminates the paradox of a functional MCS serving opposing demands of strategy execution as they underline the mediating role and relationship of ambidexterity between multiple contextual features and overall organizational performance. The contextual features are the behavioral capacity to simultaneously demonstrate alignment and adaptability. Alignment refers to coherence among all the patterns of activities in the business unit; they are working together toward the same goals. Adaptability refers to the capacity to reconfigure activities in the business unit quickly to meet changing demands in the task environment.

3.5.   A conceptual framework to research opposing yet coexisting demands

The research framework by Raisch & Birkinshaw (2008) for researching ambidexterity promotes a high level of generalizability, therefore the development of a conceptual map as a meta-analysis tool to holistically evaluate a functioning MCS to be considered functional. This was a significant step forward in organizing my thinking dealing with the rigors and complexity of this doctoral study.

The framework by Raisch & Birkinshaw (2008) is relevant for this research as the organizational ambidexterity underscores the paradox of opposing yet coexisting demands of a functional MCS. The framework suggests three clustering of research conditions:
a) directly influence a firm's organizational ambidexterity ❶❸❹;
b) moderate the relationship between ambidexterity and performance ❷❹;
c) moderate the relationship between antecedents and ambidexterity ❶❹.
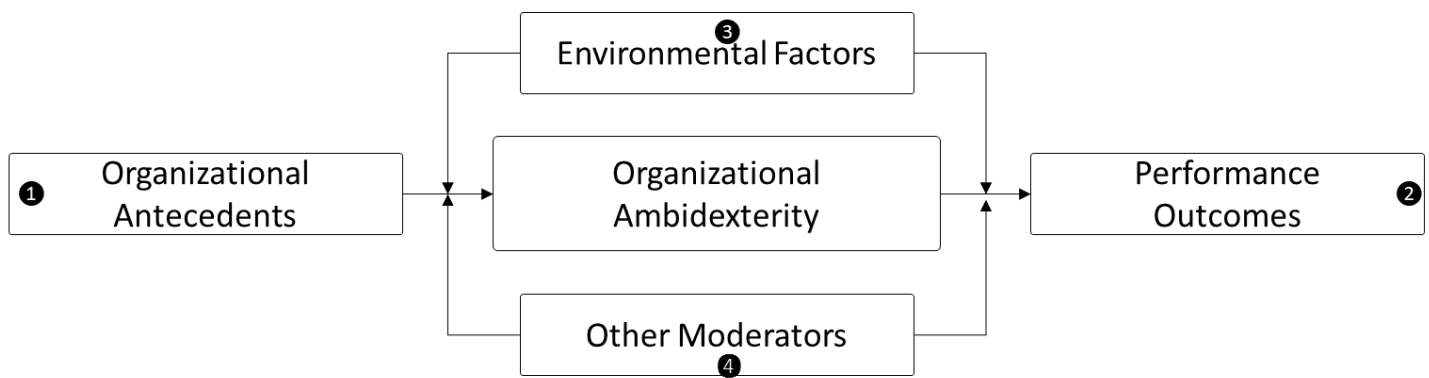
Figure 10: Research framework, Raisch & Birkinshaw (2008)

The research framework of Raisch and Birkinshaw (2008) integrates major themes to evaluate whether the performance outcome is congruent with organizational objectives, with the purpose to peak performance in the present and enable success in the future. The opportunity of the research framework also includes studies of MCS antecedents, as well as its consequences. By specifying the major themes and the interactive influences among the suggested clustering of research conditions, I provide a more complete understanding of a functional functioning MCS and how it matters to performance outcome from a optimization or exploitative perspective, as well from an innovative or explorative perspective.

The major themes of the framework allow a clear research direction for this dissertation identifying and collecting the elements of conceptual map that this dissertation must produce. The variables (major themes) of the framework are translated to relevant research areas for this dissertation and included in Table 4: Description of the research variables.

Major themes of the framework	Description of the variable
❶ Organizational antecedents	The organizational antecedents describe organizational structures, behavioral contexts, and leadership processes as promoters of ambidexterity
❷ Performance outcome	Performance outcome is defined as the firm's ability to compete successfully in the long run due to the ability to jointly pursue

Major themes of the framework	Description of the variable
	exploitation and exploration
❸ Factors	The level of dynamism and competitiveness in a business environment as an important boundary condition for organizational ambidexterity.
❹ Moderators	Moderators are the emerging contingency perspectives that underscores the effectiveness of a firm's exploitation and exploration under different contextual conditions.

Table 4: Description of the research variables

3.6.   A conceptual map to research opposing yet coexisting demands

With four major themes, the MCS research paradox of assessing opposing demands of the formal and informal MCS is at the heart of the research framework. Therefore, in this dissertation, the heart of the research framework is enriched by adopting a flow perspective of input-process-output to include dynamism and/or temporal considerations. The motivation of the enrichment of the conceptual framework into a conceptual map is in Chapter 3.3. First a mechanistic perspective as this allows an epistemological stance in this research where the performance output can be measured. Second, an organic system perspective where performance output from the informal systems can be assessed with limited uniformity from an interpretive stance.

The challenge in this research is the development of a conceptual map that is functional in supporting the concept of assessing a functioning MCS to be considered functional as organizations act in increasing fast-changing environments and with morphing conditions. The temporal effects are the results of a pattern in a stream of decisions from leaders and managers when realizing strategy (Mintzberg, 1977), and vice versa the workplace influences the formation and execution of strategies (Brauer & Schmidt, 2006; Mintzberg, 1977).

The conceptual map visualized in Figure 11, based on the conceptual framework by Raisch & Birkinshaw (2008), illuminates the paradox of the mechanistic trade-off

(either/or) to paradoxical (both/and) thinking as beforementioned and underscores the academic lens of the research problem and how the research paradigm of this research is going to be explored. In the conceptual framework of Raisch & Birkinshaw (2008), ambidexterity is at the heart of the research and organizational antecedent is a major theme or variable. In this research the MCS is at the heart of the research, where the functioning MCS, as part of the organizational antecedent, is researched.
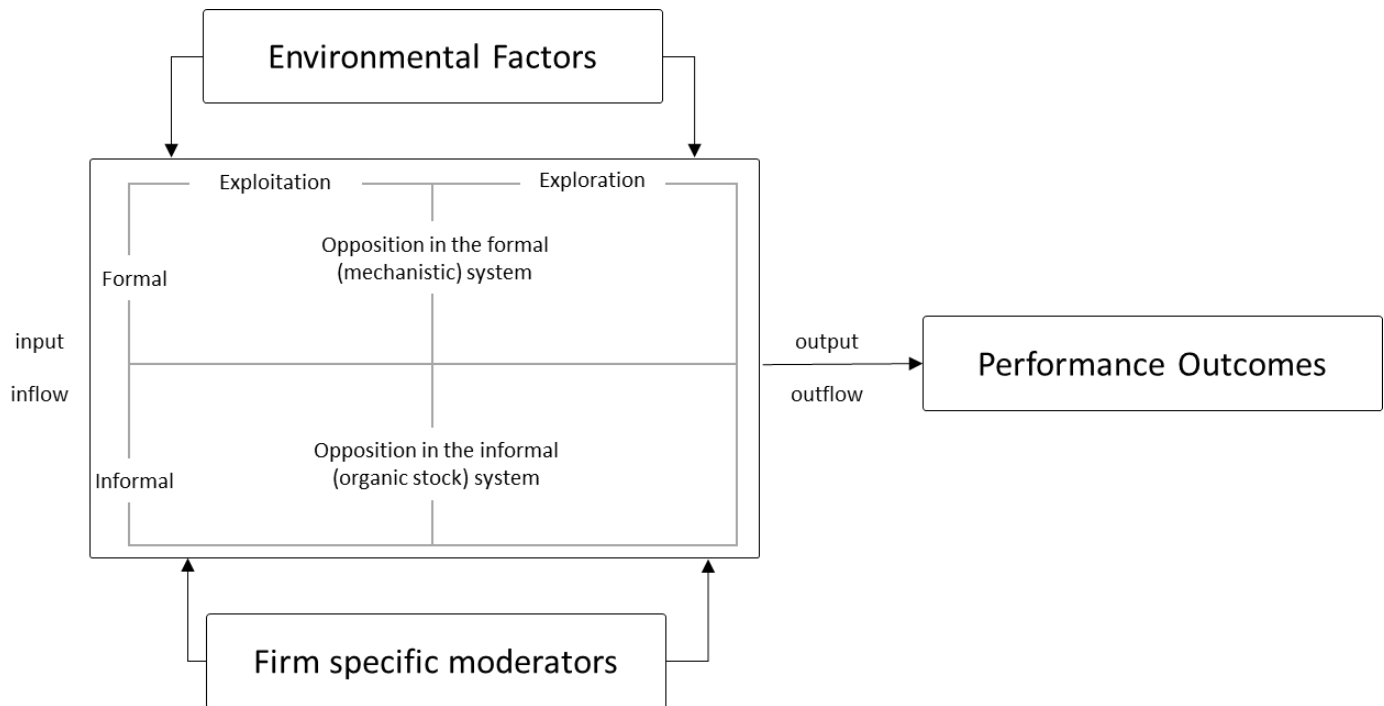
Figure 11: From conceptual framework to conceptual map

First the organizational antecedents are at the heart of the conceptual map as the starting point or stock (Meadows, 2008) for a diachronic analysis of a functioning MCS. Second are the factors and moderators that will aid in determining a functioning MCS to be considered functional from the complementarity viewpoint of managing multiple paradoxes of opposing demands. It can be easily interpreted that the paradox of opposing demands is a clear balancing of perspectives on a horizontal and or a vertical axis. Finally, the product of a functional MCS, the performance outcome that supports strategy execution.

3.7.   Conclusion of this chapter

The conclusion from the findings in this chapter is that balancing ambidexterity is a requirement for a functional MCS to further the exploitative as well as the exploratory behavior of employees in an organization (Bedford et al., 2019; Gschwantner & Hiebl, 2016; Malmi, 2016). Firms operating in stable environments operate successfully with "mechanistic management systems", characterized by clear hierarchical relations, well-defined roles and responsibilities, and clear job descriptions while, in contrast, firms operating in more turbulent environments developed more "organic" systems with a lack of formally defined tasks, more lateral coordination mechanisms, and less reliance on formalization and specialization (O'Reilly III & Tushman, 2013; Taródy, 2016).

This chapter identified, articulated, and constructed the conceptual map as the foundation for the structured map to synthesize the findings in the remaining chapters on what is academically known and unknown to assess a functioning MCS to be considered functional.

Chapter 4. MCS in MC context

A system is more than the sum of its parts. It may exhibit adaptive, dynamic, goal-seeking, self-preserving, and sometimes evolutionary behavior (Meadows, 2008, p. 12).

A clear distinct line between MC and MCS is not present in MC and MCS literature. An attempt is made in this section of the dissertation. This chapter presents what is academically known on MCS in Management Control context using the systematic literature review approach described in 2.2. Systematic Literature Review with the purpose to generate key themes and codes for the cross-case study.

4.1.   MCS in Management Control context

Before we can research, debate, and eventually assess a MCS to be functional we must be clear that MCS is a MC instrument of aligning management objectives with organizational objectives. A broad variety of definitions exists for MC and MCS with often contradicting terminology and meanings (Chenhall, 2003; Malmi & Brown, 2008; Merchant & Van der Stede, 2007).

4.1.1.   MCS is a Management Control instrument

MC is a compilation of "systems, rules, practices, values and other activities management put in place in order to direct employee behavior" (Malmi & Brown, 2008, p. 290; Sageder & Feldbauer-Durstmüller, 2019). MC specifically addresses the goal congruence question where people pursue personal goals that conduce to the organizational goals (Escofet, N.C., Rosanas, J. M, 2012).

The seminal definition of MC by Anthony (1965) is that "Management control is the process by which managers influence other members of the organization to implement the organization's strategies.". Zanibbi (2011) referred to this definition asking the focus question of "How do manager influence members of an organization to implement strategy?". This includes formal control mechanisms, or the mechanistic perspective, with written procedures, ICT-based systems and rules that guide individuals' behavior, ensuring the fulfillment of the company goals (Chtioui & Thiéry-Dubuisson, 2011), and

informal control mechanisms, the organic perspective, that are less objective, uncodified, not consciously designed, and include the firm's unwritten policies (Akroyd & Kober, 2019; Langfield-smith, 1997).

One note on language concerns mechanism vs. systems. Multiple MC and MCS scholars refer to mechanism as <u>A</u> working set of processes, while system as <u>A collection of</u> working sets or processes that interact to perform predetermined objectives (Caglio & Ditillo, 2008; Flamholtz et al., 1985; Langfield-smith, 1997). The conceptual understanding must be that MCS is an instrument of MC supporting strategy execution.

4.1.2. The broadened Management Control perspectives

Anthony's (1965) seminal scholarly work has opened numerous research avenues for scholars (Herath, 2007) with various typographies of MCS frameworks. Although Anthony (1965) identified MC as a process for the whole organization for doing the things right, he purposely neglected the process of strategic planning and decision-making to do the right things, and the operational control activities of doing things right (Otley, 1995). Merchant and van der Stede (2007) broadened the MC perspective with objective setting and strategy formulation (Kolk, 2019).

The broadened MC perspectives

Operational Control	Implement strategies	Strategic planning
Merchant and van der Stede (2007)	Anthony (1965)	Merchant and van der Stede (2007)

Table 5: The broadened MC perspectives

The broadened perspective provides the opportunity to systematically review MCS scholarly work and organize them around the broadened MC perspectives. The scholarly conclusion is that multiple factors have a temporal interrelationship on MC process, and its MCS components. with corporate strategy (Merchant & Otley, 2020; Mundy, 2010; Otley & Soin, 2014; Zanin & Costantini, 2018).

With the broadened MC perspectives strategic factors like the external environment with its stakeholders and competitors, and operational factors like the effectiveness and efficiency of operations, are included in the MC process (Kolk, 2019).

4.2.   Management Control themes

Multiple patterns of meaning, or themes (Braun & Clarke, 2012), are suggested by scholars, which includes temporal perspectives related to decision-making, strategy vs. operations perspectives, and an outside inside perspective. And literature suggest that MC supporting strategy execution differ in degrees of specification (Chowdhury & Shil, 2020).

The systematic literature review follows the steps from Saunders five stage approach (Saunders et al., 2019, p. 111) and visualized in Figure 12. Reproducibility is an important mark of a rigorous study, and the search for literature must be thorough and far-reaching (Okoli & Schabram, 2010).

Stage 2
Sub-Research Question 1

1.   **MCS in MC context**

Location of studies	Selection and evaluation	Analysis and synthesis	Reporting the results	Themes

22 (twenty-two) articles and 2 (two) books

Cursory analysis and appraisal of the abstracts connecting MCS researches with the broadened MC perspectives.

2 (two) broad themes and 22 (twenty two) sub-thems
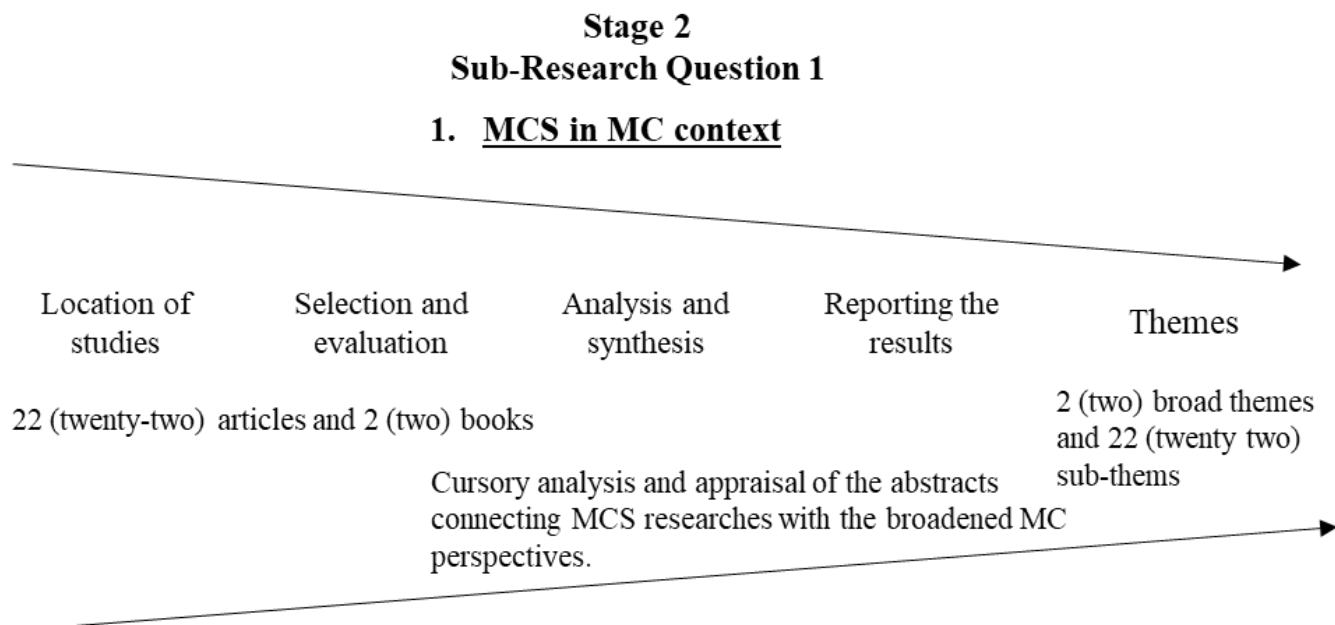
Figure 12: The operationalization of the research for MCS in MC context

The first step is the location of academic studies between 2000 and 2021 with the keywords Management Control Systems, which resulted in more than 36.000 hits on

Google Scholar. The conceptual and general findings from researches before 2000 might be relevant, but purposely excluded because of their potentially limited relevance for recent theoretical MCS development. In this step of selection and evaluation, the first activity is a practical screen is conducted in the title of the research that connects MCS research to the broad MC perspectives.

The next step of analysis and synthesis is a cursory analysis of the abstracts that reveals MCS researches in the context of the broadened MC perspectives. The articles and books that meet the MC criteria linked with strategy implementation are included. The selection criteria to be included for analysis are key words like "achieving organizational objectives, "strategy implementation", "strategy execution", and "organizational goals". 22 (twenty-two) articles and 2 (two) books are selected for the MCS in MC context analysis. An appraisal is conducted, connecting MCS researches with the broadened MC perspectives.

The appraisal of the assessment, the systematic step of reporting the results, of the 22 (twenty-two) articles and 2 (two) books is presented in presented in Table 7: MCS appraisal in MC context. The assessment is organized through a series of themes and sub-themes with a clear and rigor framework and linked to the broadened MC perspectives in Table 6: Management Control themes and sub-themes.

Worth noticing is the management control book by Franssen (2015) because of the overall criticism on MC, and MCS, research excluding the matter of time or a time horizon (Merchant & Otley, 2020; Otley & Soin, 2014). The management control book by Franssen (2015) adds a temporal orientation of past, present, and future control. The time horizon perspective allows for the identification of management focus on getting the basics right (past control), optimization of processes (present control) and an outside-in / inside out or innovation perspective (future control). Franssen (2015) connects the temporal perspective with classic methods and techniques with contemporary forms of control of the behavior of people in the organization with contemporary themes, such as data analytics, strategic behavioral change, and IT transformation. It aids for diachronic analysis of temporal dynamics in the MC and MCS context.

The opportunity of Table 7: MCS appraisal in MC context, summarized in Table 6: Management Control themes and sub-themes is not to present scholarly completeness nor proof of the conceptual depth of Management Control, and its systems. Table 6 is a subjective impression with some theoretical uniformity in understanding research work from multiple scholars. Rather, Table 6 should be recognized as a conceptual view to assess a functioning MCS in the MC context where the sub-themes can be interpreted as a variable with a cause-and-effect relationship where the outcome can be measured, even with a degree of subjectivity.

Themes and sub-themes		The broadened MC perspectives		
		Operational Control Merchant and van der Stede (2007)	**Implement strategies** Anthony (1965)	**Strategic planning** Merchant and van der Stede (2007)
Directions & Decisions	**Stakeholders context**	Intra-organizational		Extra- and inter-organizational
	Intra-organizational audience	First-line supervisors	Top management, line managers	Top management, staff specialists
	Evaluating activities	Doing things good	Managing doing things right	Deciding to do the right things
	Time horizon orientation	Past	Present	Future
Deeds & Data	**Ambidexterity of information**	Exploitive		Explorative
	Performance orientation	Measuring	Monitoring	Managing
	Nature of information	Daily	Diagnostic	Tailor-made
	Information orientation	Hindsight	Insight	Foresight

Table 6: Management Control themes and sub-themes

The outcome of a functional MCS can be easily interpreted as that it should contain measures as a 'system' does. Here lies another research paradox whereas the formal systems can produce measures, it would be challenging for the informal system. For simplification purposes, the themes are considered sub-themes and aggregated in two main themes.

The first theme, Direction and Decision-making, is motivated from a strategy perspective that is defined as the direction of the organization and the decision-making

power to execute the strategy and supports doing the right things to attain organizational objectives dealing with the stakeholder's context (Falkheimer et al., 2016; Frow et al., 2010). It is top management that decides on a strategy and the overall MCS (Bukh & Svanholt, 2020). Falkheimer et al. (2016) unintentionally underscores the ambidexterity paradox where the explorative doing the right things is about being proactive and future-oriented, promoting change, creating vision and strategy that support organizational success and legitimacy. The exploitative doing things right perspective is about administering and focusing on current business, establishing processes, information, and routines to enhance effective action.

The second theme, Deeds and Data, is the information flow as it connects behavior with facts to measure, monitor and manage the execution of the rights things (Martin, 2020; Tuomela, 2005) as it is middle management that is important for achieving objectives and implementing strategies (Bukh & Svanholt, 2020). The formal MCS provide information to monitor, direct, evaluate, and compensate employees that support strategies and provide information related to markets, customers, competitors, and production processes, with a broad array of decision support mechanisms and controls that assist in decision-making (Martyn et al., 2016; Merchant & Van der Stede, 2007).
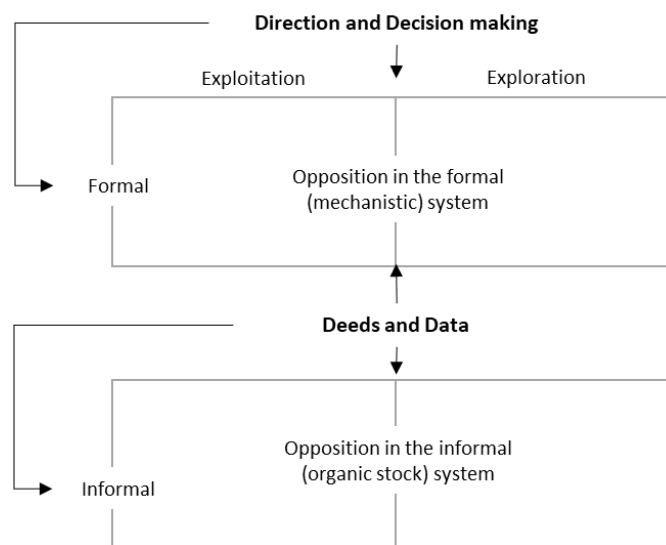
Figure 13: Conceptual map synthesis with MC themes

4.3. Conclusion of this chapter

The challenge of MC is goal congruence, aligning management objectives with organizational objectives. The conclusion of this chapter is that to assess a MCS, as a functional MC instrument, the two MC themes can be used. The paradoxical challenge is to synthesize the themes in the conceptual map. From a mechanistic either/or perspective the themes must be placed at one point in the conceptual map. However, the concept of ambidexterity allows for paradoxical both/and thinking where the themes can be placed on multiple points in the conceptual map.

The synthesis of the proposed conceptual map, see Figure 11,with themes from this chapter is presented in Figure 13. The synthesis allows for an interplay between the juxtaposed components of the conceptual map itself, as there is the plurality of the components with persistent underlying paradoxical tensions with the MC themes.

Main themes	Sub-themes	Defining sub-themes	Keywords highlighting the MC themes	Important literature highlights	Selected references
Direction and Decision	Stakeholders context	The stakeholder context reflects the intra-, inter- and extra organizational actors that can influence the direction of the organization and the decisions involved for strategy execution and firm's performance.	• Intra-organizational • Extra-organizational • Inter-organizational	• MCS should be in accordance with the strategy, but they are thought to be contingent to specific external situations • External stakeholders such as alliance partners, trade unions, investors, and analysts base their assessments and forecasts on the firm's articulated corporate concept. • Failure to effectively manage environmental innovation strategy may result in long-term negative consequences, such as losing valuable resources, customers, competitiveness, and eventually diminished organizational performance and reputation. • Manufacturer–supplier relationships are subject to both performance risk and relational risk which involves three types of inter-organizational trust building, namely contractual trust, competence trust and goodwill trust.	(Brauer & Schmidt, 2006; Malmi & Brown, 2008; Pernot & Roodhooft, 2014; Wijethilake et al., 2018)
	Intra-organizational audience	Management Control can be viewed as a rational decision-making process among different echelons within the organization, influencing activities that supports the achievement of organizational objectives.	• First-line supervisors • Line managers • Top management • Staff specialist	• Top management team (TMT) support has been identified as one of the most important critical factors to the success of management control systems (MCS) innovations. • Long-term survival and growth depends on the firm's ability to exploit its current competencies while exploring fundamentally new ones. • The problem with poor performance typically is not with planning, but with doing. • Making strategy work is more difficult than strategy making. • Top-level managers believe strategy implementation is ''below them,'' something best left to lower-level employees. • If top managers are focused on strategy as a pattern, they give emphasis to interactive control. • If firms are concerned with strategy as a plan they heavily emphasize diagnostic control, addressing such issues as how they are performing in turning their intended strategy into a realized strategy, and whether or not the implementation is on track.	(Hartmann et al., 2021; Hrebiniak, 2006; Kruis et al., 2016; Taródy, 2016)

Main themes	Sub-themes	Defining sub-themes	Keywords highlighting the MC themes	Important literature highlights	Selected references
	Evaluating activities	Different echelons experience the doing differently leading to many times to re-prioritizing planning over control	• Doing things good • Managing doing things right • Deciding to do the right things	• Leadership and doing the right things are about being proactive and future-oriented, promoting change, creating vision and strategy that support organizational success and legitimacy. Management and doing things right are rather about administering and focusing on current business, establishing processes and routines in order to enhance effective action. • Managers are Trained to Plan, not Execute • Execution will suffer if people are rewarded for doing the wrong things. • Initially intended strategies may remain unrealized; whilst new unforeseen elements may emerge in the strategy formation process, in order that 'strategies can form without being formulated'. • Upper echelon theory proposes that experiences, values, and personalities of firm executives greatly influence their interpretations of the situations they face and, in turn, affect their choices	(Andersen & Lueg, 2017; Falkheimer et al., 2016; Hrebiniak, 2006; Mintzberg, 1977)
	Time horizon orientation	The time horizon perspective past, present and future control allows for the identification of management focus on getting the basics right (past control), optimization of processes (present control) and an outside-in / inside out or innovation perspective (future control).	• Past control • Present control • Future control	• Alignment between a firm's strategic intent and strategic actions is not likely to last'' and that ''inevitably, strategic actions will diverge from strategic intent''. • MCSs change not only in relation to strategy (future perspective) , but also in response to an autonomous source: implementation (present perspective). • During the growth phase, the focus is in *ex ante* planning and budgetary comparisons, while the limited management accounting resources are not dedicated to any great extent to, e.g. ex post profitability analysis, except for some ad hoc calculations. This time-orientation, together with the other features typical of NEFs, certainly has had its effect on the accounting and control task priorities by a business controller.	(Brauer & Schmidt, 2006; Coller et al., 2018; Franssen & Arets, 2015)
	Ambidexterity of information	Continuous balancing process of producing and communicating exploitative and explorative information. Depending on economic and	• Exploitative • Explorative	• Research has found that while many firms do not lack a focus on exploitation, they often invest too little time and resources into exploratory activities • Exploration, by its nature, is inefficient and is associated with an unavoidable increase in the number of bad ideas. Yet, without some effort toward exploration, firms, in the face of change, are likely to fail. • Linking strategic objectives with the day-to-day objectives and	(Gschwantner & Hiebl, 2016; Hrebiniak, 2006; O'Reilly III & Tushman, 2013)

Main themes	Sub-themes	Defining sub-themes	Keywords highlighting the MC themes	Important literature highlights	Selected references
Deeds and Data		environmental conditions, the balance shifts to exploitation (drive for numerical/paper predictability) and exploration (ability to learn).		concerns of personnel at different organizational levels and locations becomes a legitimate, but challenging task. • To accomplish strategic flexibility, middle managers, for example, are empowered to mobilize and reconfigure resources in order to capture market opportunities faster than competition	
	Performance orientation	Management control systems provide information that is intended to be useful to managers in performing their jobs and to assist organizations in developing and maintaining viable patterns of behavior	• Measuring • Monitoring • Managing	• Effective measurement and management of SPFs could be a useful way to improve the success of strategy execution resulting in competitive advantage. By and large, the research on SPF for effective strategy execution has been limited to clarifying what to measure, ensuring strategy-organization-resource fit, and setting accountability • To ensure their role, MCSs gather and use information from different levels within the company for analysis and presentation to the senior and top management as indicators (most of the time performance indicators, KPIs) and dashboards to help in decision-making • Management control system (MCS) is a procedure and formal system that uses information to maintain the focus of participants in organizational activities such as planning, monitoring, and reporting • Focusing on how performance management systems support control, this article seeks to provide two "next-generation" performance scorecards - the Performance Wheel, suitable for most organizations and the Small Business Performance Pyramid, which acknowledges the unique requirements of small business.	(Adib & Zhang, 2019; Henri, 2006; Otley, 1999; Srivastava & Sushil, 2015; Watts & McNair-Connolly, 2012)
	Nature of information		• Daily • Diagnostic • Tailor-made	• For management accounting to be relevant and applicable for management control in organizations, management accounting processes need to keep pace with the changing and evolving information and control needs of organizations. • The external perspective is missing on most dashboards and MCS models. If companies only follow-up their own performance, they can miss what is really happening and then pass by opportunities that may improve their business. To better implement their strategies and improve their performances, organizations need to know who their key stakeholders are and how there are positioned in the environment and linked to their business. • These two types of use[i.e., interactive and diagnostic] work simultaneously but for different purposes. Collectively their power	(Adib & Zhang, 2019; Kruis et al., 2016; J. Lee et al., 2014)

Main themes	Sub-themes	Defining sub-themes	Keywords highlighting the MC themes	Important literature highlights	Selected references
				lies in the tension generated by their balanced use which simultaneously reflects a notion of competition and complementarity"	
	Information orientation		• Hindsight • Insight • Foresight	• Strategic foresight is a system of capabilities that allow firms to navigate through volatile, complex, and uncertain environments. • The execution of strategy usually takes longer than the formulation of strategy • Hindsight might not be able to correct past mistakes, but it will aid improved decision-making in the future. • Management control systems provide information that is intended to be useful to managers in performing their jobs and to assist organizations in developing and maintaining viable patterns of behavior.	(Chowdhury & Shil, 2020; Hrebiniak, 2006; Kolzow, 2015; Rohrbeck et al., 2007)

Table 7: MCS appraisal in MC context

Chapter 5.   MCS in functioning Vs. functional context

Despite their 'navigation systems', firms never seem to stay completely on course for longer periods of time

(Brauer & Schmidt, 2006)

5.1.   MCS typographies

Before continuing the MCS functional debate in this dissertation, I must honor the typographies of well researched typographies, or frameworks, by MCS authors who built on Anthony's (1965) seminal work. The typographies in Table 8: MCS typographies provide insights about MCS as they offer different views on the MCS components, however providing little guidance for assessing their completeness or their effectiveness (O'Grady et al., 2016). This is no evaluation of which typography is better or worse as all typographies has been empirically researched with numerous application in several industries and many countries as multiple literature reviews have proven (Chenhall, 2003; Kolk, 2019; Langfield-Smith, 2006; Martyn et al., 2016; Sageder & Feldbauer-Durstmüller, 2019; Zanin & Costantini, 2018). The opportunity of the MC grouping with the two MC main themes (see chapter 4.2) in Table 8 lies in the broad scope to evaluate the usability of individual control types within a contingent organizational situation rather than the conceptual depth of individual control types.

MCS typographies	Levers of Control	Result, Action and Cultural Control	Management control systems as a package
	Simons (1995)	Merchant and Van der Stede (2007)	Malmi and Brown (2008)
Direction & Decision-making	Interactive control		Planning
	Diagnostic control		Cybernetic
Data & Deeds	Boundary	Action	Administrative
	Belief	Result	Cultural controls
		Cultural controls	Reward and compensation

Table 8: MCS typographies

While the MCS literature is replete with studies that investigate control systems, many focus on only one MCS element such as the use of performance measures only investigating single facets of a multifaceted construct (Widener, 2007). It is well-

recognized that the MCS is comprised of multiple control systems that work together (Berry et al., 2009; Chenhall, 2003; Otley, 1999; Widener, 2007) as Malmi and Brown (2008) have proven. Another finding is that empirical MCS research is neglecting the timely consideration of control systems as MCS research has been largely static (Martin, 2020; Marx et al., 2012). A third finding is that incentive or reward systems are included in multiple MCS frameworks as to control or influence the attitudes of the actors of the company through values, beliefs, moral standards and unwritten traditions (Ouchi, 1979), it is remarkable neglected in MCS research (Chtioui & Thiéry-Dubuisson, 2011; Sageder & Feldbauer-Durstmüller, 2019).

The objective of this chapter is to identify themes and codes from MCS research that directly purposefully or unintentionally debate the functioning Vs. functional context of the MCS. The concept of functional builds on the results of the debate in chapter 1.4.1 where *functional* serves the purpose for what it is designed.

5.2.   Themes from MCS research

Systematic consistency is paramount as the search for literature must be thorough and far-reaching (Okoli & Schabram, 2010). The systematic literature review for identifying potential themes to assess a functioning Vs. functional MCS from MCS research follows the steps from the five stage systematic approach (Saunders et al., 2019, p. 111) and is visualized in Figure 14.

Like the systematic literature review of MCS in MC context in chapter 4.1, the first step is the location of academic studies between 2000 and 2021 with the keywords Management Control Systems, which resulted in more than 36.000 hits on Google Scholar. In this step of selection and evaluation, the first activity is a practical screen conducted in the title of the research that connects MCS research related to a purpose of a MCS or the functioning of the formal or informal MCS.

Stage 2
Sub-Research Question 1

1. MCS in MC context
2. **MCS in functioning Vs. functional context**

Location of studies · Selection and evaluation · Analysis and synthesis · Reporting the results · Themes

82 articles, 1 doctoral dissertation and 2 books

- 3 themes for the firm specific moderator
- 4 themes for the performance outcome
- 5 themes for the Antecedent:

In-depth analysis and appraisal of the researches that purposefully or unintentionally debate the MCS in the functioning Vs. functional context

Figure 14: The operationalization of the research in functioning Vs. functional context

The next step of analysis and synthesis is a cursory analysis of the abstracts that reveals MCS researches that purposefully or unintentionally debate the MCS in the functioning Vs. functional context. The selection criteria to be included for analysis are key words like "contribution to meet organizational objectives", "configuration of MCS", "types of MCS", "role of MCS", "uncertainty", "management accountant", "interplay of MCS components", and "effectiveness". The key words are motivated by the replete research debate of the design and use of a MCS which trigger the what, how and who. The result of the analysis and synthesis step resulted in 82 (eighty-two) articles, 1 (one) doctoral dissertation, and 2 (two) books which are selected for the functioning Vs. functional context analysis.

The results of the in-depth analysis is reported and presented in the conceptual map that organically evolves in four logical intervals. In the first interval the findings from literature emerge from the debate of the purpose of the MCS to identify the functional context, which resulted with 2 (two) broad themes that influence the firm specific moderator variable of the conceptual map, plus 1 theme that is considered an

integral part of the firm specific moderator. The performance outcome variable of the conceptual map is enriched with four broad themes. The second interval is the debate on the findings by linking the purpose with the performance outcome. The findings from the researches resulted in five broad themes enriching the core of the conceptual map. In the third interval, the link is debated using the findings on who is responsible for the link itself, which resulted in two broad themes. Finally, the debate the misconception of the tools for the link.

5.3. The MCS purpose is to support strategy execution

The purpose of a MCS is to help managers execute strategies within their organizations (Coller et al., 2018; Frigotto et al., 2013; Merchant & Van der Stede, 2007; Zanibbi, 2011). The interplay and interface of top management – middle management is crucial how middle managers translate the generally formal directives received from top management into workable solutions that account for specific idiosyncrasies at lower organizational levels (Reimer et al., 2016). In the ambidexterity discussion of a functional MCS balancing between exploiting and exploring, it is relevant to distinguish between leadership and management. Leadership is about deciding to do the right things, to be proactive and future-oriented, promoting change, creating vision and strategy that support organizational success and legitimacy with a focus on the exploration side of the organization (Falkheimer et al., 2016; Umans et al., 2020). While management is about exploiting the organization, doing things right and, focusing on current business, establishing processes and routines to enhance effective action.

Here lies another paradox as the least obvious part of a system, its function or purpose, is of the most crucial determinant of the system's behavior (Meadows, 2008, p. 16). Contingency theory suggest that, as the firm's internal resources and external characteristics evolve over time, it will be difficult to utilize control systems and the control mechanisms within (Martin, 2020) as the challenge for any MCS design is the bespoke organizational strategy. Early MCS research confirms that strategy is under continual construction affecting the configuring of MCS with strategy as an ongoing development process (Gond et al., 2012; Kober et al., 2003; Langfield-smith, 1997).

Furthermore, MCS changes slowly compared to organizations objectives (Hartmann et al., 2021, p. 438). The paradox is that there is a lack of knowledge of how MCS as a strategic vehicle (Merchant & Van der Stede, 2007) can be continuously functional in supporting strategy execution and their relevance in the assessment and monitoring of the strategy (Adib & Zhang, 2019). Strategies differ between organizations as they operate in their own unique environment, and controls should be tailored to the requirements of specific strategies (R. W. Adler, 2011; Otley & Soin, 2014). Moreover, organizations face the challenge of dealing with multiple institutional logics (Schäffer et al., 2015).

The body of MCS research has grown considerably, bringing about fragmented and partly contradictory results (Sageder & Feldbauer-Durstmüller, 2019), raising questions about what we know and don't know. MCS researchers might unintentionally criticize and debate each other findings when they design their research choosing one research assumption following contingency theory. This assumption might be a research question as it contradicts a methodological approach of presenting empirical findings from research. However, it illuminates the paradox of determining the right research approach whether a MCS is functional for its purpose.

5.3.1. Strategy Execution

Different scholars in Management Accounting, Strategic Management and Organization science use different terminology for achieving organizational objectives, e.g., strategy implementation (Awadh Bin-Nashwan et al., 2017; Maas, 2008; Roque et al., 2019), strategy execution (Pagani, 2013; Sheehan, 2010). Consequently, there is no scholarly difference between strategy implementation and execution labels. A significant body of literature has explored the purposefulness of the relationships between MC, MCS and strategy (Bisbe & Malagueño, 2012; Coller et al., 2018; T. Davila et al., 2011; Frigotto et al., 2013; Martyn et al., 2016) and the conceptualization of performance measuring strategy execution (Srivastava & Sushil, 2015). Multiple scholarly frameworks and definitions of strategy implementation simply add new variables to previous

frameworks or re-group variables from new angles with limited possibilities to test them empirically (Yang Li et al., 2008).

Strategy formulation and execution are separate, distinguishable parts of the strategic management process, whereas the execution of strategy usually takes longer than the formulation of strategy (Hrebiniak, 2006). Strategy formulation and strategy execution are two intertwined albeit distinct constructs – and organizational success may depend as much on formulation of a sound strategy as on proper execution thereof (de Oliveira et al., 2019). Research on strategy formulation is significantly higher than the research on strategy execution (Hrebiniak, 2006; Srivastava & Sushil, 2013).

A critical note can be made as much of the MC and MCS research linked to strategy execution has concentrated on cross-sectional analysis where organizations are assumed to have a static generic business strategy type, ignoring temporal development of the organizations and strategy execution inconsistency (Brauer & Schmidt, 2006) when a strategic change occurs (Kober et al., 2003). MC and MCS researchers have frequently referred to the typologies of Miles and Snow (1978) supporting strong theoretical generalizability (Agbejule & Jokipii, 2009; Arjaliès & Mundy, 2013; Auzair, 2015; Bedford, 2015b; Chapman, 2005; Gond et al., 2012; Pondeville et al., 2013). In practice, the generic business strategy types may not be as pure as Miles and Snow describe (Tan et al., 2006). Large organizations, such as multinational corporations, typically consist of multi-layered organizational hierarchies where organizational typologies might respond differently as each organizational layer might experience its own unique intra- and inter-organizational tensions.

To help understand the point of the distinction between strategy formulation and strategy execution, a visual vehicle metaphor, see Figure 15: Strategy and Google Maps, is used with a common real-world example. The use of Google Maps to travel from Amsterdam in The Netherlands to Barcelona in Spain. Google Maps visualizes three travel scenarios with the key consequence of time. The choice of determining Barcelona as the destination can be an entirely different process than the process of choosing the travel itinerary. As is the actual execution of the journey. A longer time frame can make it

harder for managers to focus on and control the execution process (Hrebiniak, 2006; Maas, 2008), underlining the temporal dynamics that a functional MCS has to cope with.

Figure 15: Strategy and Google Maps

A firm's strategy execution is continuously influenced by several factors and unforeseen elements that emerge in the strategy execution process causing strategic actions to diverge from the strategic intent (Brauer & Schmidt, 2006) as intended strategies can be realized or not, while unintended strategies are realized (Mintzberg, 1977). Based on this view, the MCS supporting the strategy execution process should not be seen as a static architectural structure but as an evolving process where the components of the MCS continuously morph to be congruent with current and prospective implementation strategies, assuring to remain functional while functioning.

The definition for strategy execution used in this research is the one by de Oliveira et al., 2019, whose formulation is empirically constructed from multiple definitions of strategy execution literature while dealing and being informed on the progress with planning and doing of the strategy execution. De Oliveira et al., 2019, argues that while managers need measures of strategy execution to assess how well they are executing the

firm's strategy (and take corrective action if appropriate), researchers need measures of strategy execution to relate the construct to its antecedents and outcomes as a way of developing theory. The theoretical construct of measuring the strategy execution by de Oliveira et al., 2019, allows for a clear distinction of cause (actions to be implemented to execute the strategy) and consequences (results expected from such actions), therefore a direction to assess a functioning MCS to be considered functional.

"Strategy execution (implementation) is the process, and related procedures, of (i) informing – and of being informed by – managers and employees about company challenges as well as of (ii) translating the strategic plan (either explicitly stated or else just assumed by top-level managers) into specific actions and (iii) establishing consistency among distributed company efforts and respective resource-allocation decisions, in search of coherent movement for alignment between organizational effort and strategic intention in pursuit of corporate objectives."

De Oliveira's et al., (2019) distinction of cause and consequences is relevant in this dissertation as any organization evolves over time, continuously balancing the cause and consequences of intended and unintended strategies affecting short term- and long-term performance outcome while dealing with the ambidexter informing challenges of exploiting and exploring among its multi-layered organizational hierarchies (Gschwantner & Hiebl, 2016). It should be clear that the opposing demands in strategy execution cannot be debated from a pure mechanistic perspective and involves a more organic context on the organizational antecedents of structures, processes and systems (Gibson & Birkinshaw, 2004). Supporting strategy execution is a dynamic process in which the MCS continuously needs the support while functioning. This motivates to include the dynamism of intended and the unintended strategies linking the short-term and long-term consequences to the conceptual map.
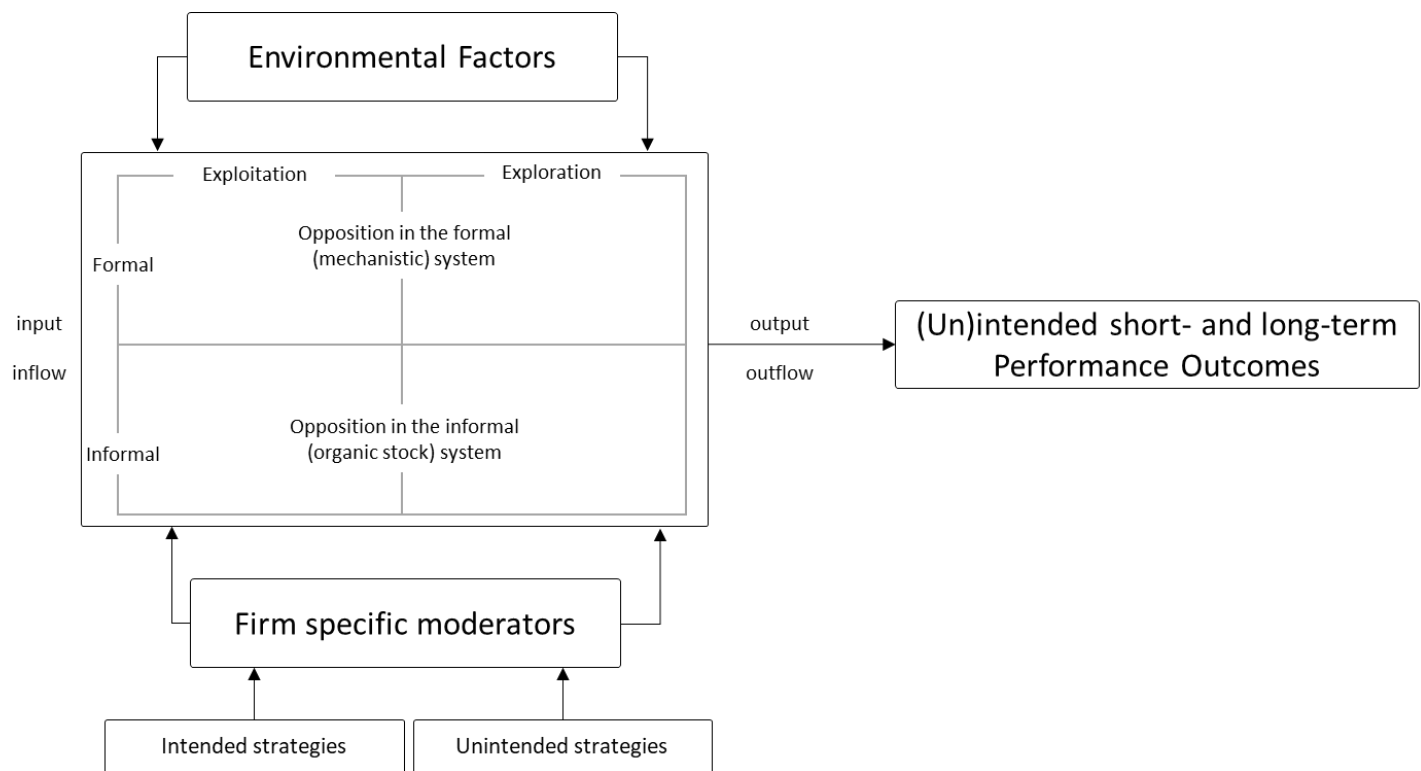
Figure 16: Linking dynamism of strategies and performance outcomes

At first sight of Figure 16, the organizational antecedents and the performance outcome of the conceptual framework, can be implicitly conceptualized as the input/inflow and the output/outflow (see chapter 3.3) of the MCS, with strategy execution at the heart of the conceptual framework. Linking performance factors with the execution of strategy is proven (Srivastava & Sushil, 2013), however, the linkage of the management of performance as a consequence of intended and unintended strategic actions is unclear. The challenge of supporting strategy execution according to the De Oliveira's et al. (2019) distinction of cause and consequences is to link antecedents and performance outcome by an informing process, the specific actions and consistency. The linkage between the dynamism of strategies, dealing with the intended and unintended strategies, and the short-term and long-term performance outcome requires more evidence.

5.3.2. Linkage between the dynamism of strategies and performance outcomes

Different scholars suggest multiple linkages between organizational antecedents and the performance outcome (Paliokaite & Pačesa, 2015; Van Looy et al., 2005). This

dissertation debates and motivates the information link between the organizational antecedents and performance outcome. Multiple scholars suggest that the linkage between antecedents and performance outcome is an ambidexter information flow that deals with multiple institutional logics in a changing context considering temporal effects (Schäffer et al., 2015; Smith & Lewis, 2011). The ambidexter information flow needs to reconcile the opposing demands of ambidexterity dealing with the temporal dynamics of the intended and unintended organizational strategies. The information flow needs to link the morphing conditions of the organizational antecedents to inform managers of changes in the environment (Gibson & Birkinshaw, 2004; Raisch & Birkinshaw, 2008; Simsek et al., 2009).

Next to dealing with the dynamism of strategies, the MCS challenge is to be conducive to sustain its purpose in morphing conditions, balancing short term performance information with long term performance information. Thus, systems that engage in exploitation to the exclusion of exploration "are likely to find themselves trapped in suboptimal stable equilibria." (March, 1991). As an organizational researcher March suggested that a functional system, as with a MCS, needs to simultaneously support both exploitation and exploration for an organization to survive and prosper from an organizational learning perspective. Exploitation is associated with certainty, efficiency and short-term gains, while exploration is associated with exploration with adaptability to change and a drive for organizational, product and technological innovation (Gschwantner & Hiebl, 2016; O'Reilly III & Tushman, 2013).

A too much focus on the exploitation side of the required ambidexter information flow with predictable outputs may enhance short-term performance, but can result the organization being captured in a competence trap resulting in an organization that is not able to respond adequately to environmental changes (March, 1991). Conversely a too much focus on the exploration side of the ambidexter information flow of dealing with uncertainty, in inefficiency and costs, may trap an organization in an endless cycle of unrewarding search and change (Gschwantner & Hiebl, 2016; March, 1991; Raisch & Birkinshaw, 2008).

The debate in this dissertation is that a functional functioning MCS is not merely the information flow that includes planning, budgeting, performance measurement that facilitates evaluation, feedback, and corrective action therefore facilitate a predictable outcome (Hosoda, 2018; Malmi & Brown, 2008; Marx et al., 2012). The formal information flow of the MCS must contain a relatively static consistent mechanical perspective focused on exploitation and in parallel, should support an organic morphing process where the information flow encourage creativity, innovation (Gschwantner & Hiebl, 2016), and organizational learning (March, 1991) focused on exploring opportunities and dealing with risks.

The ambidexterity implies multiple two-way channels of formal, directed procedures of communication and informal channels of social interaction, both hierarchically and horizontally (Frow et al., 2010), confirming the critical role of how MCS can be perceived as a functional system in the strategy execution process as presented in Figure 17 where the added themes are presented in the conceptual map. The guiding ambidexter principle is that the informal MCS components require a subtle approach (Berry et al., 2009; Lueg & Radlach, 2016; Reimer et al., 2016), as benefits from explorative activities only become apparent in the long run, which is contrary to benefits generated by exploitative behaviors (Raisch & Birkinshaw, 2008).

The paradoxical findings in MCS research underscores the ambidexter information flow of a MCS motivating to furthering the conceptual framework, therefore the conceptual map. Both the exploitative information flow and the explorative information flow are important drivers of continuous organizational success. However, they are often regarded as conflicting (Speklé et al., 2017).

The information flow must dynamically balance a temporal paradox of promoting predictability to achieve trust for managers to make decision achieving internal organizational goals and in parallel support the firms evolving competitive position, providing information to translate strategic plans into specific actions, while considering the unique and constant changing dynamics in the extra-organizational context that fuels inconsistent strategy execution. The concept of ambidexterity in the information flow is

placing the management of tensions as a central rather than a periphery feature of the information flow (Seal & Mattimoe, 2014) is visualized in Figure 17. For readability purposes the outcome variable in the visualization has been left out.
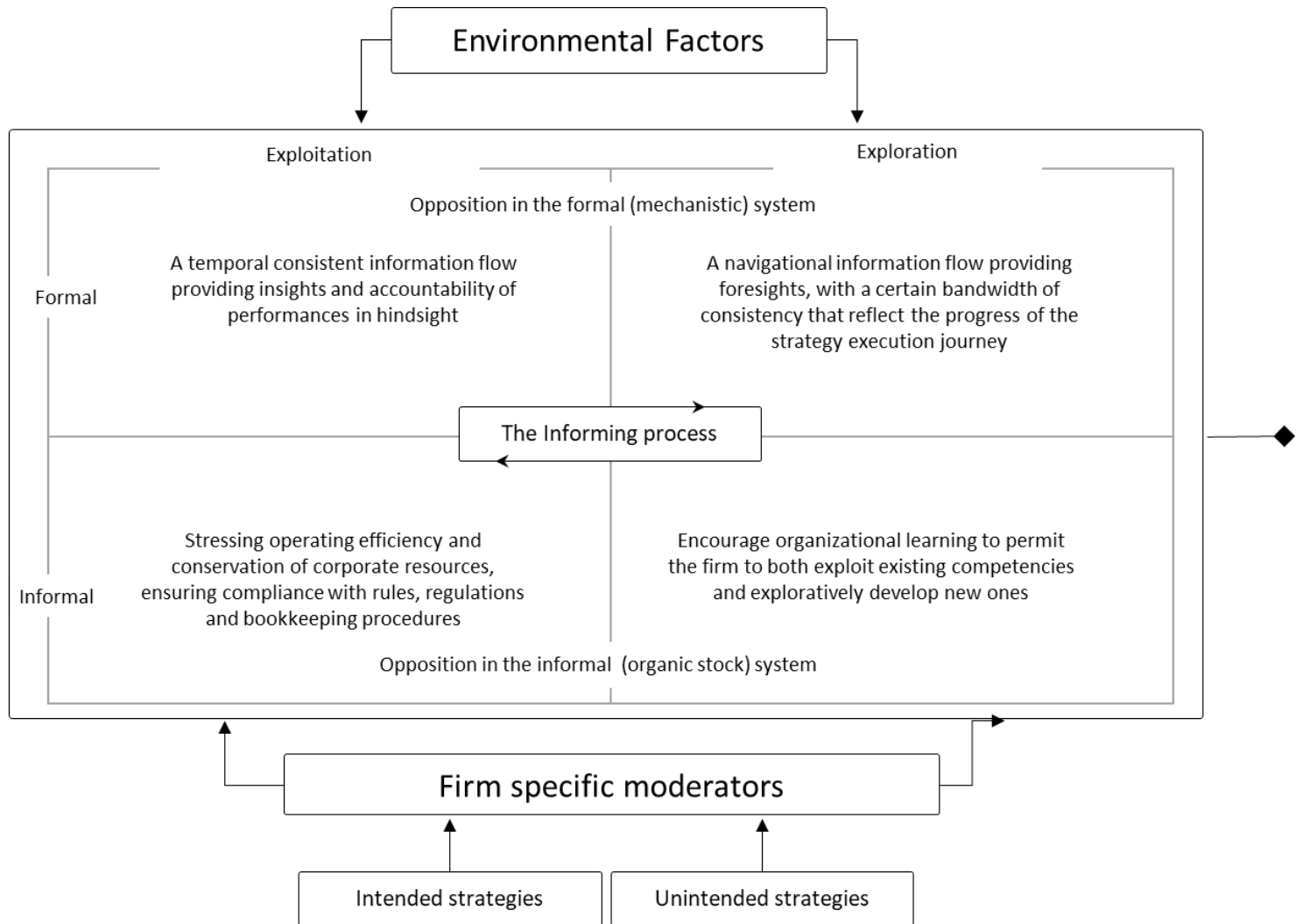
Figure 17: Information process centrality in the conceptual map

Research by Agbejule (2009) confirms the informing need for managers to be aware of the drivers of the control system's effectiveness and the relationships essential to drive effectiveness, especially when operating in different strategic fields. This motivates the centrality of the ambidexter information flow to navigate the organization from one business strategy to another with interchanging long-term and short-term performance outcomes.

5.4.   The director of the ambidexter information process

The centrality of the MCS information flow discussion raises the question of who is responsible for producing and directing the ambidexter information flow. The information centrality fuels the importance of the director of information in producing and validating the truth providing evidence (Lambert & Pezet, 2011) while dealing with organization ambidexterity (Gschwantner & Hiebl, 2016. Managing the ambidexter tensions, the producer of the information flow needs to decide to tactfully and judiciously distribute the information or not (Puyou, 2018).

In the origin of Management Accounting research, the Management Accountant is viewed as a partner in the process of management's decision-making, devising planning and performance management systems, and provides expertise in financial reporting and control in order to assist management in the formulation and implementation of an organization's strategy (Wadan et al., 2019). However, the centrality of the informing process implies different propositions of the management accountant (Hiebl, 2013) in managing stakeholders' information demand, leveraging the components of the MCS, dealing with the factors, and enabling management activities to support strategy execution.

The challenge for the Management Accountant, in this dissertation the director of the information flow, must support strategy inconsistency as intended strategies can be realized (or not), while unintended strategies are realized (Mintzberg, 1977). The director of the information flow is at the heart of the functioning MCS as an integral part of the firm specific moderator determining a functional MCS. This is visualized in Figure 18.
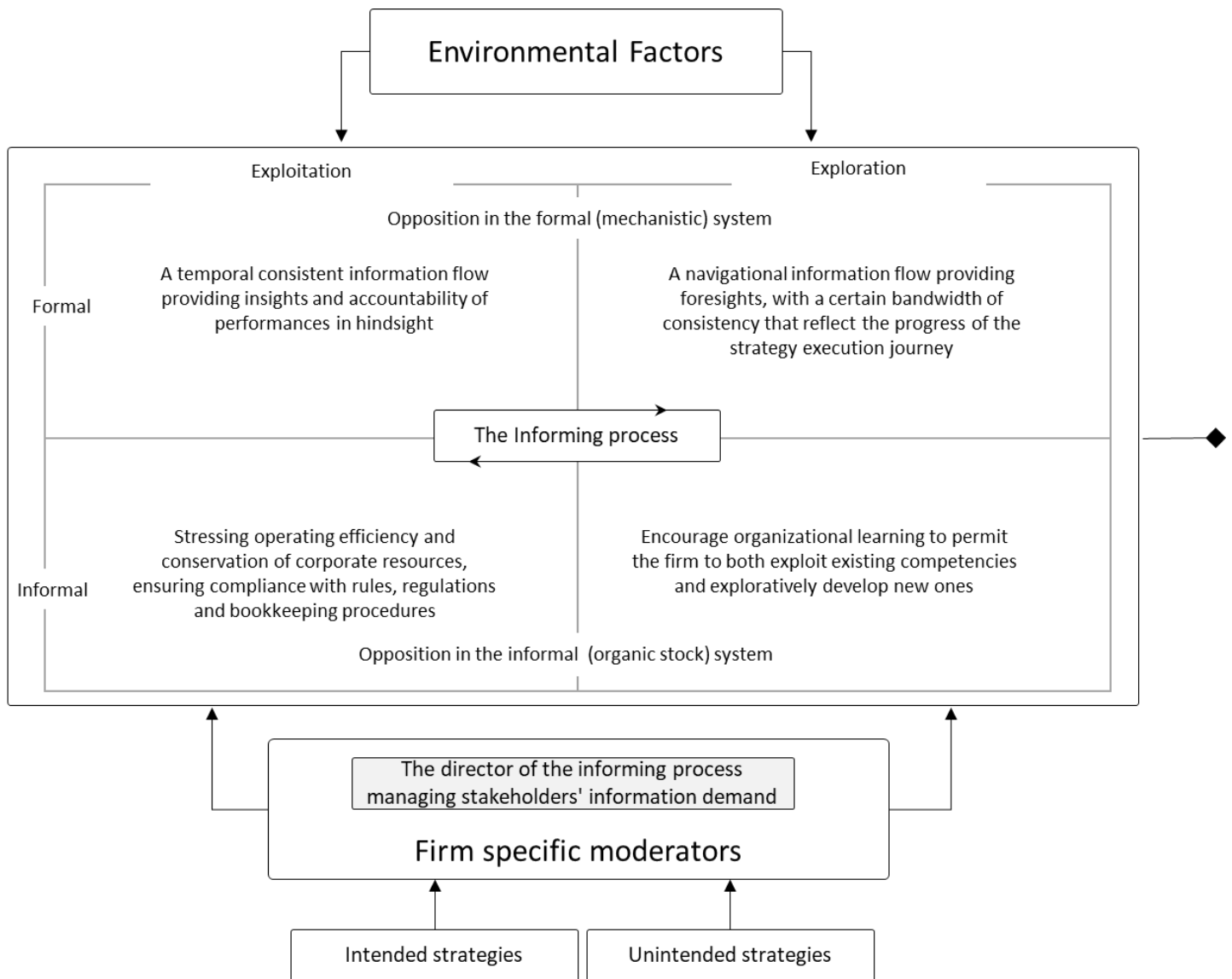
Figure 18: The who of the information process centrality in the conceptual map

For the purpose of clarity it is necessary to clarify the different terms, Management Accountant (MA) or controller, used in MCS research about the director of the information flow as both terms are often used interchangeably (Oesterreich et al., 2019). While the term 'controller' is well-known and often used within European countries in general, 'MA' is used more often in English-speaking countries such as the USA and Britain. The starting point is a common used definition of the controller in MA literature (Verstegen et al., 2007):

A management accountant or controller supports and advises the management of an organization in realizing their economic, public and/or financial goals. Support is interpreted in terms of the design and maintenance of management control and accounting information systems, and the procurement and distribution of information.'

The definition, consisting of two sentences, fuels the paradox discussion. It can be interpreted that goals are in the future, that need to be executed on both side of the ambidexter scale. The second sentence can be interpreted with an emphasis on the exploitative side of the ambidexterity scale. However, a clear distinctive border between the two sides cannot be drawn. The tension of balancing the exploitative information flow as well as the explorative information flow requires dialectic capabilities of the controller.

One consequence of recognizing and engaging in the tensions underlying organizational paradoxes is conflict (Bedford et al., 2019; O'Reilly III & Tushman, 2013). Managing the paradoxical tensions emphasizes the duality of the role of who is responsible for the information flow. On the one side the producer of information must produce a temporal consistent information flow serving the exploitation side of ambidexter scale, providing insights and accountability of performances in hindsight. At the same time produce an agile information flow serving the exploring side of the same ambidexter scale leveraging the MCS as an information navigation system, providing foresights, with a certain bandwidth of consistency, at different points in time (Brauer & Schmidt, 2006).

The director of the ambidexter information flow must therefore act as a business partner on each side of the ambidexter scale dealing with intended and unintended strategies with their own actions and consequences. Therefore, each side of the ambidexter scale must support the strategy execution steps of De Oliveira et al. (2019) with a difference in focus. To succeed as a business partner the same controller may be internally conflicted over the various roles that the controller is expected to play with the organization (Seal & Mattimoe, 2014).

The controller as a business partner requires communicative skills, such as information presentation, explanation and interpretation to supplement the more conventional tool kit of management accounting techniques that are used to generate management information (Hiebl, 2013; Jakobsen et al., 2019). However, there is a significant difference in the required skills on each side of the ambidexter scale.

5.4.1. Business partner for exploitation

On the exploitative side controllers are agents of managers and organizational stakeholders where their main responsibilities are to make sure all decisions made at lower levels of the organization are in the interest of the firm by stressing operating efficiency and conservation of corporate resources, and to ensure compliance and report accountability in hindsight with rules and regulations and technical bookkeeping procedures (Verstegen et al., 2007), while taking care of statutory accounting processes (Granlund & Taipaleenmäki, 2005).

Controllers perform an active role within the management control process of performance measurement, feedback, and reward acting as a business partner for efficiency, results and compliance (Hartmann et al., 2021, p. 324; Merchant & Otley, 2020). Worth mentioning is that increasing digitization is leading to a paradigm shift in expectations of the modern controller that includes increased data science and IT skills (Oesterreich et al., 2019; Wadan et al., 2019), underscoring the mechanistic exploitative capabilities stressing operating efficiency neglecting the explorative perspective of ambidexterity. Oesterreich et al. (2019) motivates that the controller's new skills are professional, data science, IT, methodological and includes understanding the existence of available data, statistical methods, programming, and modeling. Professional and soft skills are discussed but subordinate to the technical skills. Oesterreich's (2019) explanatory model for the change process of the controller's new job profile underscores the mechanistic skills required from the modern controller.

Research on Management Accounting Innovation consistently underscores the mechanistic and exploitation side of the ambidexter scale when dealing with

organizational uncertainties like an economic crisis (Pavlatos & Kostakis, 2018). And traditional teaching methods based on standard management control textbooks constitute management accounting and control as a technical discipline where controllers are well-equipped to adopt rationalistic, system based, or actor-based methodologies to exercise management control (Jakobsen et al., 2019).

5.4.2. Business partner for exploration

At first sight the explorative side of the ambidexter scale promotes forecasting capabilities of the controller focused on Management Accounting instruments to improve forecast accuracy, data driven decision-making (Nurgazina et al., 2022), or promote a proactive-type of planning, for example rolling forecast (Henttu-Aho, 2018). Driven by external forces like globalization, E-markets and shifting of customer demands, or technological forces like Big Data, Digitization, social media, and other technological advancements, then the expansion of skills for more complex variations of measurements seems like an obvious direction (Oesterreich et al., 2019). The expansion of instrumental skills in Management Accounting literature is replete (Albertini, 2019; Carter, 2017; Herath, 2007; Nurgazina et al., 2022; Tuomela, 2005). Earlier research by Parker (2001) states: "A fool with a tool is still a fool". Her statement is based on the notion that organizations implement tools in the hope that it solves business problems, while the root cause of the problem is still present (Parker, 2001).

The challenge of the business partner for exploration is to support execution of the intended and unintended strategies in the dynamism of today's demands, meanwhile encouraging the organization to adapt to changes in the environment, so that the organization will be around tomorrow. The opportunity in this dissertation is to position the controller as a business partner to encourage organizational learning to permit organizations to both exploit existing competences and exploratively develop new ones.

The required skills for the controller to encourage organizational learning is limited in Management Accounting literature. Carter (2017) suggests a shifting conception of Management accounting in general by transferring the value construct of

the traditional material management accounting towards the emergence of immaterial-based capital. Carter (2017) states that not everything that counts should be counted suggesting that Management Accounting should rely on trust and instituting new control mechanisms. Management Accounting literature is focused on the use (or a lack of use) of instrumental tools, methods facilititating intelligent and rational action. Gibson & Birkinshaw (2004) suggest skills that support organizational stretch, discipline, support, and trust as the behavioral capacity to simultaneously demonstrate alignment and adaptability. By their nature, such capacities are complex, causally ambiguous, widely dispersed, and quite time-consuming to deve1op (Gibson & Birkinshaw, 2004). Paliokaite & Pačesa (2015) propose skills to encourage organizational capabilities via a collection of high-level, learned, patterned, repetitious behaviours so that an organisation can perform better relative to its competition.

Both March (1991) and Levinthal (1993) underscores the risks of organizational tendencies to overinvest in exploitation. Organizational learning successes with measurable operational performance can be a poor teacher for the long-term. Learning from experience involves inferences from information. Organizations record the lessons of history in formal and informal systems, therefore self-limiting their learning capabilities. As a result, the risks of ignoring failure as an organizational learning capability is likely to be underestimated and in its wake the tendency to ignore the potential long-term benefits. The lessons of past century still applies today. The short run is privileged by the organizational learning mechanism of simpliciation as short-term performances are easily measured and monitored with information systems. Long-term organizational performance requires imagination to overlook distantant times, distance places, and failures.

The suggestion for the business partner for exploration is to include skills to encourage organizational learning to exploit existing competences and exploratively develop new ones with an information flow beyond the inference of history to navigate the shifting landscape.

The learning capability related to information is in line with the well-researched MCS framework 'Levers of Control' by Simons (1994), who adopted the MCS definition of the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities. It is clear that organizations need information from their MCS to learn and adapt in order to change to fit their changing environment (M. T. Lee & Widener, 2011) as information plays a an important role supporting the organization's dynamic capabilities and help senior managers to make decisions to reallocate and reconfigure organizational skills and assets to permit the firm to both exploit existing competencies and to develop new ones (O'Reilly III & Tushman, 2013).
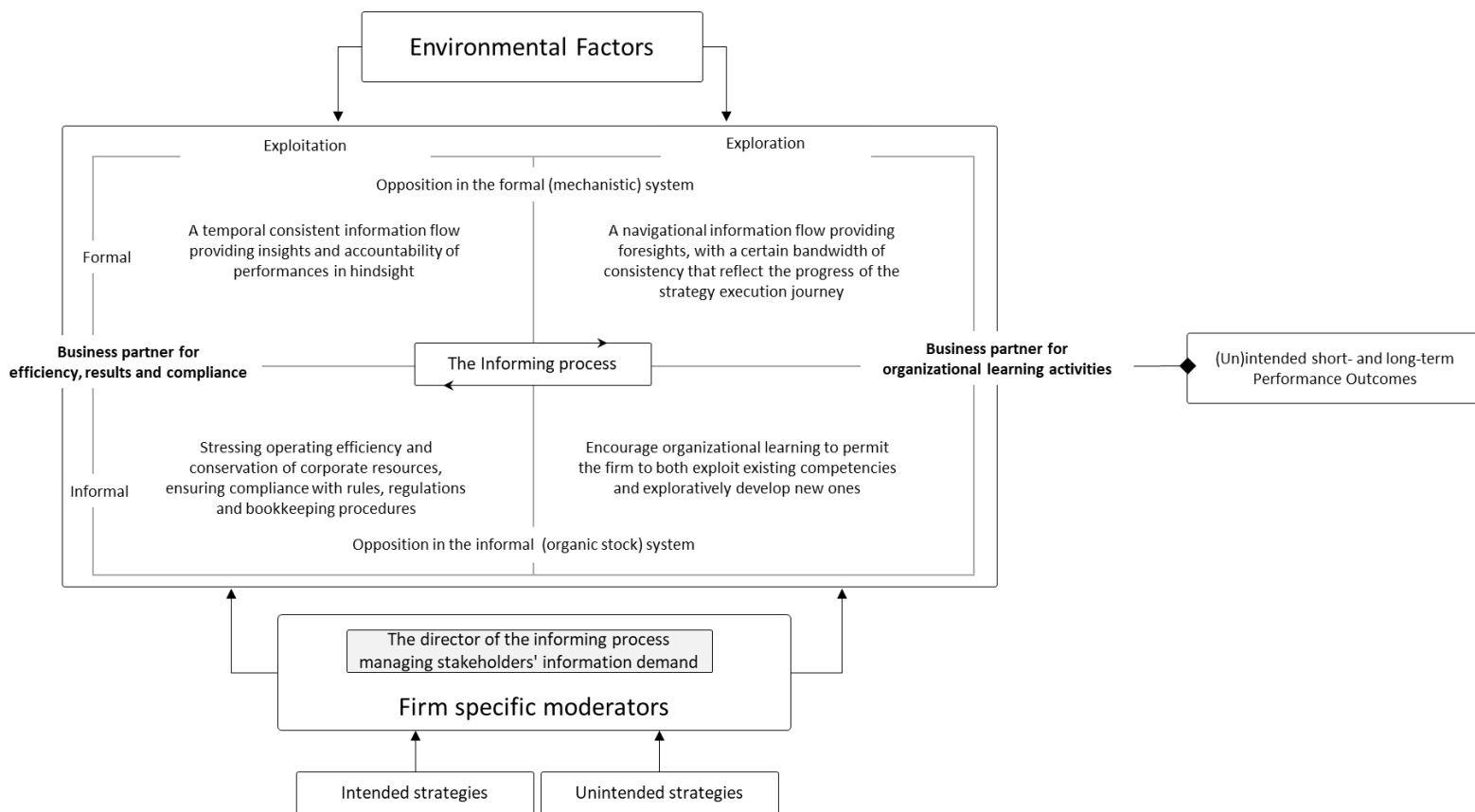
Figure 19: The who's and what of the information centrality in the conceptual map

5.4.3. The formal MCS informing tools for the business partner

The business partners have the daunting task of dealing with the tensions of opposing demands aligning short-term and long-term performance outcome. The informing process of a functional MCS must support opposing strategy execution demands with differences in each juxtaposed section of the conceptual map.

On the one side supporting exploitative strategy execution where the inference of history is presented in a consist information flow monitoring incremental bettering of performances aligned with the intended strategic outcome as a result of organizational learning processes focused on operational efficiency. On the other side supporting explorative strategic activities which requires imagination to a point and place in time where the information systems act as a navigating system reflecting the imaginitive progress of the explorative strategy execution proces as a result of the organizational learning process of specialization. The opposing objectives of the informing proces suggest that the business partners use different means to functionally serve the vertical axis of the conceptual map.

The exploitative MCS gather and use information from different levels within the company for analysis and presentation to the senior and top management as indicators. Indicators that contain output from measures collected from a multitude of internal data sources. The criticism on the exploitative information process is that the external perspective is missing (Adib & Zhang, 2019; Adiputra et al., 2020; Davies et al., 2006).

The explorative MCS gathers and withdraw external information resources from outside the organization as leaders and managers need to steer organizations similar to airplanes dealing with changes and arising opportunities in the external environment (Brauer & Schmidt, 2006). The external information sources cannot be checked for reliability therefore managers need to be comfortable to use the information resources with a certain bandwidth of reliability, like a navigation system of a vehicle.

In the vehicle metaphor, a driver uses two systems. A dashboard system that presents information on the functioning and the performance of the vehicle. And a navigation system to provide information on the estimated time of arrival at the planned destination. Here lies the information dilemma as research and real-world practice rely on information to support strategy execution. A dashboard is a driving metaphor implying that the driver needs to glance frequently at gauges, while in motion, that present measures of the performance like speed and revolutions per minute (Allio, 2012). And there are warning lights that flash up in case individual components of the vehicle are under or not performing. The dashboard of the vehicle presents the performance of past and present measures confirming the organizations ability to be aligned and efficient in its management of today's business demands (Raisch & Birkinshaw, 2008).

Research is clear that dashboards and visualizations are a cybernetic system because it provides information on measures (e.g., financial measures, non-financial measures) that allows managers to diagnostically compute and monitor variations in exploitative performances (M. T. Lee & Widener, 2011; Malmi & Brown, 2008). The context of the performance of the vehicle and the velocity is interpreted by the driver of the vehicle. As the organizational dashboard presents organizational measures, the measures are a presentation of data collected from internal systems that are administered and registered for the purpose of supporting an organizational activity (e.g. financial administration, Human Resource Management, logistic planning, production resource allocation). Administrative data must be transformed for the purpose of presenting measures and providing information.

The vehicle's dashboard does not provide information on the progress of the journey, deviation of the planned route or when the vehicle is expected to arrive at the destination. It is the navigation system of the vehicle that provide information within a certain bandwidth of consistency at different points in time to present key metrics that reflect the progress of the journey and the estimated time of arrival.

	Vehicle dashboard	**Vehicle navigation**
Real world example	An instrument displaying the vehicle's operational performance. Usually at the center of a driver's viewpoint.	An instrument where the vehicle posits at the heart of the display with a perspective that stretches beyond the horizon of the driver's viewpoint.
Visual example		
Data	Performance (internal) data, measured via sensors, from individual components of the vehicle	GPS data to get its actual position on a map which is then correlated to a position on a road to calculate a route. On the fly traffic information (road closures, congestion) to potentially suggest alternate route.
Purpose	Measuring the performance of the vehicle	Supporting the decision-making process of adjusting direction and/or velocity of the vehicle

Table 9: Dashboard Vs. Navigation systems

Given that MC and MCS are decision-supporting activities, academic literature is clear that there is an obvious link with the information flow within an organization (Proença & Borbinha, 2016; Rikhardsson & Yigitbasioglu, 2018; Scarlet et al., 2011) and the potential benefits of the use of organizational dashboards. Due to continuous advancements in Information and Communication Technologies (ICT) and the fast-paced nature of the business environment today, managers are often overwhelmed with reports and information churned out from a multitude of organizational information systems such as Enterprise Resource Planning (ERP), performance scorecards, and business intelligence (BI) software that compete for managers' attention (Yigitbasioglu & Velcu,

2012). Organizational leaders and managers rely on Business intelligence and analytics (BI&A) technologies that facilitate data collection, analysis and information delivery and are designed to support decision-making (Rikhardsson & Yigitbasioglu, 2018).

Business intelligence & analytics

Business intelligence & analytics (BI&A) has evolved to become a foundational cornerstone of enterprise decision support, however with the criticism that little attention has been given to BI&A post-adoption stages (Côrte-Real et al., 2014). The mechanistic approach of organizational dashboards of underscoring the purpose and use of a dashboard versus a navigation system as part of a MCS is clear. The organic approach is that the information flow should manifest itself to support decisions of senior managers to help an organization reallocate and reconfigure organizational skills and assets to permit the firm to both exploit existing competencies and exploratively develop new ones. As leaders are in the upper echelon of the organizational hierarchy, they must top-down implement the strategy negotiating the doing things right exploitation of established processes, routines, and behavior with the explorative strategy of new right things to do.

Promising technologies like Artificial Intelligence (AI), Robotics, and machine learning will challenge both partner roles on the horizontal and vertical ambidexter scale. Conversely there is the opportunity for the controller to navigate the organization on the use of digital technologies where information has become a production factor (Wadan et al., 2019).

5.4.4. The informal MCS informing tools for the business partner

It is not functional to guide individual behavior, but rather the behavior of lower-level managers to efficiently manage organizational resources to achieve organizational objectives (Hartmann et al., 2021, p. 75). The budgeting process for example, is the most common exploitative control tool to influence behavior aligning managers objectives with financial organizational objectives, which helps predict financial outcomes over a one-year period (Wadan et al., 2019). The idea of budgeting for a year ahead was developed in a time of stable markets, static costs, and predictable inflation (Stretch, 2021, p. 6).

Continuous budgeting is a method to potentially reconcile conflicting objectives by integrating different uses of budgeting with other management controls to encourage managers to use their discretion in operational matters when confronted by unexpected events (Frow et al., 2010). Managers are likely to experience situations where there is some ambiguity about what to do. Belief systems may prescribe what is desired, and boundary systems proscribe what is to be avoided but the demarcation between them may not always be clear (Frow et al., 2010; Henri, 2006; M. T. Lee & Widener, 2011). The annual or the continuous budgeting are both aimed at directing and coordinating managers' decisions and behaviors in line with the organization's annual strategic objectives. The paradox of the instrumental use of these control systems is that budgetary objectives are based on an analysis of historical performance (Adib & Zhang, 2019) which stress operating efficiency and a conservative form of managerial behavior (Lopez-Valeiras et al., 2012, 2016). This type of instrumental control gives a false sense of security and hinders flexibility (Adib & Zhang, 2019) as the business partner is confronted with budgetary gaming and slack management (Puyou, 2018).

An explorative process to encourage organizational learning might be a more challenging activity for the business partner. Rolling forecasts direct management's attention towards the future and ensure that planning is ongoing as opposed to an annual exercise (Stretch, 2021, p. 6). Top managers make their own decisions based on their sense of purpose for the organization and their personal assessment of associated strategic uncertainties (Simons, 1994, p. 61).

However, whatever combination of decisions top managers may select, managers further down the managerial hierarchy may experience difficulties in managing the opposing objectives of exploiting existing resources and exploring opportunities. The role of the business partner is to encourage the hierarchal interplay between top and middle management, and the navigational interplay between short objectives with long term objectives. Leadings this subtle and complex dance requires the capability and

competences of the business partner to sense changes in the VUCA [2] business environment (Horney et al., 2010) and transfer them internally to manageable performance outcomes.

5.5.   Conclusion of this chapter

The strucutered map has evolved and is enriched with academic knowledge from from systematic combining management accounting theory with orgnanizational learning theory. The organizational learning direction of this dissertation suggest different instruments for the controller. As Carter (2017) suggest skills and capabilities beyond the calculative rationality as the basis of management accounting, Levinthal (1993) states that, in the face of changing business environment, the ability to learn is an important source for long-term survival of any organization. Levinthal (1993) descibes two mechanisms of organizational learning to improve organizational performance outcome. The first is simplification which leads to incremental improvements of organizational outcome. The second is specialization as a learning system for organizational adaptation to changing circumstances. The two mechanisms are easily connected with the ambidexter scale when assessing a functioning MCS to be considered functional.

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[2] Volatility – The nature, speed, volume, magnitude and dynamics of change;
• Uncertainty – The lack of predictability of issues and events;
• Complexity – The confounding of issues and the chaos that surround any organization; and
• Ambiguity – The haziness of reality and the mixed meanings of conditions

Chapter 6. MCS in organizational context

MCS do not operate on their own (Malmi & Brown, 2008), as MCS are an integral part of an organization. Organizations do not exist in a vacuum as organizations are part of a dynamic environment that forces organizations to adapt to the latest conditions with constantly evolving opportunities and risks, business transformation, regulatory pressures, sustainability, green practices, and technological advancements (Adi & Sukmawati, 2020; Hristov et al., 2021; Marx et al., 2012). MCS are a package of functioning formal and informal instruments in the context of management control (see Chapter 4).

Like the systematic literature review for identifying themes of MCS in MC context (4.1) and from the functioning Vs. functional debate (5.1) the visualization of the systematic literature review is presented (Figure 20) and described.
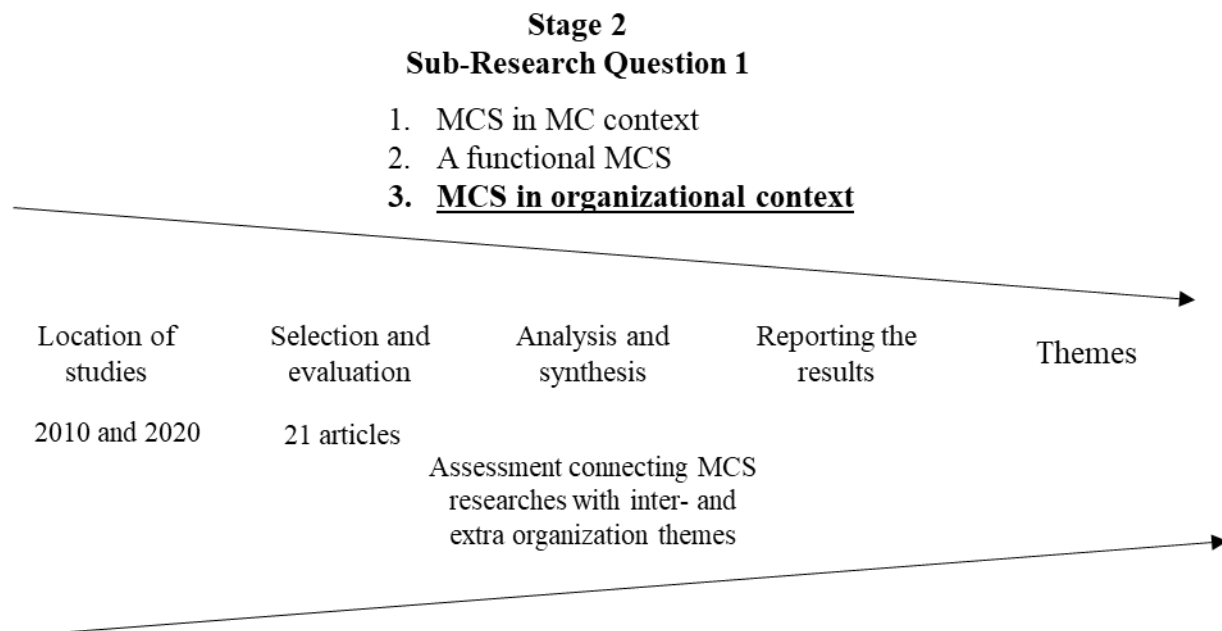
Figure 20: The operationalization of the research for MCS in organizational context

Chapter 4 produced MCS themes in MC context, while Chapter 5 produced MCS themes from the functioning Vs. functional debate. In this chapter, the organizational

context allows to complement the themes with a comprehensive holistic organizational perspective that are relevant for the completion of the conceptual map.

Following the step-by-step systematic literature review approach by Saunders (2019), I have conducted a selective search (step 2) on publications between 2010 and 2020 and keywords connecting MCS with inter- and extra- themes that holistically might have a potential impact on the functioning MCS. This includes keywords like innovation as it might affect the functional functioning of the functioning MCS. The motivation is that by birth MCS is intra-organizational oriented.

The conceptual and general findings from researches before 2010 might be relevant, but purposely excluded because of their potentially limited relevance for recent theoretical MCS development. In this step a practical screen is conducted in the title of the research that potentially connects MCS research to other areas. 21 (twenty-one) articles are selected for the organizational MCS context. Multiple studies have been published in leading management journals such as *Management Accounting Research* and *International Journal of Management Research & Review*. The researches are not limited to publication in leading management journals. Most of the reviewed studies focus on antecedents and factors that affect the design and use of a MCS. Themes in MCS research can be more complex to consider as they might have a moderating effect on the antecedents and factors of the functioning MCS. The organizational context in the conceptual framework of this dissertation nevertheless provides researchers working in the MCS field with a comprehensive overview and reveals the themes and research areas that affect a functioning MCS.

The next step (step 3) is a cursory analysis of the abstracts that reveals that MCS researches have embraced the opportunity to connect MCS to other research areas, therefore acknowledging that MCS cannot be seen as an isolated intra-organizational system (Grabner & Moers, 2013) underscoring the functional purpose of the holistic conceptual framework of this research.

An appraisal (step 4) of the 21 (twenty-one) articles is conducted, connecting the researches with the relevant variables of the conceptual framework to identify themes to include in the assessment of a functional functioning MCS. The assessment criteria to connect the researches to the conceptual framework is described Table 10. The criteria are adjusted from the description by Raisch & Birkinshaw (2008) in Table 4. The concluded findings, research directions and unintended considerations for a functional MCS, from the organizational context perspective, are presented in Table 12. The 21 (twenty-one) articles axially generated meaningful key words.

Variables (major themes) of the framework	A functioning MCS supporting exploitative and explorative strategy execution
❶ Organizational antecedents	Factors, themes that affect the intra-organizational functioning of the formal and informal control systems.
❷ Performance outcome	Suggested performance outcomes from themes that a functioning MCS needs to functionally balance.
❸ Environmental factors	How to include the outside-in perspectives in a functioning MCS to continuous and functional support strategy execution
❹ Moderators	The organizational contingency perspective that affects the functioning MCS to functionally supporting strategy execution

Table 10: Assessment criteria to identify themes from organizational context

The opposing demands of a functional MCS are at the heart of the conceptual map meanwhile bordered and influenced by inter- and extra-organizational context. It is therefore relevant to describe both contexts.

6.1. Inter-organizational

The inter-organizational relationships, e.g. strategic alliances, that transcend organizational boundaries create challenges to assess a functioning MCS to be considered functional. An important aspect for the MCS context is that organizations move from a single to a multiple value chain and even into global networks and platforms. Organizations increasingly rely on strategic and operational partners to access

complementary resources and skills, protect their markets, win new market share, and share risks (Carlsson-Wall et al., 2011; Langfield-Smith, 2006; Meira et al., 2010) fueling the necessity of considering inter-organizational factors when assessing a functioning MCS to be considered functional.

MCS operating in an inter-organizational context is conceptually different as coordinating activities take place between legally independent organizations where there is no clear formal hierarchical authority (Hartmann et al., 2021, p. 225). Also, MCS literature on inter-organizational context does not provide one definition and is often labelled as 'inter-organizational relationships', 'inter-firm settings', 'hybrid organizational forms', and 'networks' (Caglio & Ditillo, 2008). These include strategic alliances and supplier partnerships (Pernot & Roodhooft, 2014), and subcontracting (Carlsson-Wall et al., 2011).

The characteristics of inter-organization aspects contain a level of trust as if collaborating with friends and dealing with foes (Carlsson-Wall et al., 2011; De Ribeiro Campos et al., 2019; Laguir et al., 2019), as trust is important as it is not possible to contract for every contingency (Meira et al., 2010; Pernot & Roodhooft, 2014; Reusen & Stouthuysen, 2017). According to Pernot & Roodhooft (2014) trust cannot be considered as a MCS control instrument by itself as trust is not a behavior (e.g. Cooperation), or a choice (e.g. taking a risk), but an underlying psychological condition that can cause or result from such actions. Trust as a social control has a significant impact on organizational performance (A. Davila, 2012).

The characteristics of the inter-organizational context does magnify the challenge of assessing a MCS to be considered functional. The outcomes of the inter-organizational context affect present control practices, both tangible and intangible. And some of the affects will emerge in the distant future and with considerable uncertainty underlining the necessity of including temporal considerations to assess a functional MCS.

6.2. Extra-organizational

The extra-organizational context are the boundaries of society (Albertini, 2019) where the organization operates in, therefore influencing the objectives of an organization and as a consequence the strategy and its execution. The extra-organizational context can have a short-term and/or a long-term effect on the functioning MCS, if any. It is up to leadership to decide whether specific themes must be considered in the organizational strategy, and in the functioning MCS. For example, societal pressure that demands that organizations take responsibility for the risk of global warning. A growing number of companies have implemented practices such as formal ethics systems, corporate codes and participation in initiatives to shape ethical standards or behavior to address the environmental issue (Albertini, 2019; Aziz et al., 2015; Pondeville et al., 2013), sustainability (Caputo et al., 2017; Gond et al., 2012) and corporate social responsibility (Arjaliès & Mundy, 2013; Chenhall et al., 2010; Hosoda, 2018; Laguir et al., 2019).

For a MCS to be considered functional, a functioning MCS must take into account the broader extra-organizational context, which is a crucial element to prosper and implement the strategy (Coller et al., 2018; Kaplan & Norton, 2009; Mundy, 2010).

6.3. Themes from organizational context

The research from Table 12 exemplifies the myriad context when considering and reviewing a functioning MCS. The key words generated from the research from Table 12 are presented in Table 11. The key words generated to assess a functioning MCS are evaluated following the description in Table 10. A theme that originates from research with an extra-organizational focus can be considered as a(n internal) moderator instead of an external factor. The motivation is the contingency approach of an organization that operates in diverse extra organizational environments and with its own strategies and own unique formulation and execution of the strategies.

The variables (major themes) of the conceptual framework related to the researches	Key words	Studies nr in Table 12
Environmental factors	MCS supporting the Corporate Social Responsibility agenda	1.
Moderators	Green integration in formal and informal controls	2.
Moderators	Through formal inter-firm control mechanisms resulting in informal outcome and behavior	3.
Moderators	Include stakeholders analysis in the MCS.	9.
Moderators	A MCS process to include sustainability	12.
Moderators	Inter-organizational social controls	16.
Moderators	Contradictory effects of MCS on social capital	17.
Moderators	Inter-organizational ethical elements influencing MCS	18.
Moderators	Influence of trust in inter-firm relationships on MCS	19.
Moderators	CSR activities in MCS by stakeholders pressure on top management	21.
Organizational antecedents	Formal and informal organizational capability to adapt to ambidexter circumstances	4.
Organizational antecedents	Information to change employee behavior	5.
Organizational antecedents	MCS as an agent of change	6.
Organizational antecedents	MCS's paradigm to include Big Data to solve the behavioral problem to achieve organizational goals	7.
Organizational antecedents	Circumstances whether MCS supports or helps product strategy.	8.
Organizational antecedents	Integration of sustainability control systems with MCS	10.
Organizational antecedents	MCS hinder and/or support innovation	11.
Organizational antecedents	A MCS process to include CSR activities	13.
Organizational antecedents	Include environmental performance drivers in the MCS	14.
Organizational antecedents	Limited inclination to include environmental factors in the MCS	15.
Organizational antecedents	Informal controls is able to overcome operational difficulties	20.

Table 11: Themes from organizational context

The box presentation of the MCS

For a functioning MCS to be considered functional in the broad organizational context, the MCS needs to function functionally supporting present strategies, but able to adapt to future organizational changes, which in turn is influenced by a multitude of factors. In a myriad arena, a functional MCS needs to constantly support the alignment of managerial behaviors with often contradicting goals and opposing strategies.

While well-researched MCS concepts and frameworks (Broadbent & Laughlin, 2009; Ferreira & Otley, 2009; Herath, 2007; Malmi & Brown, 2008; Merchant & Van der Stede, 2007; Simons, 1994) contain clear demarcation of soloistic MCS components in a

multitude of organizational contexts, fueling the criticism on MCS research that is static and unchanging (Merchant & Otley, 2020; Otley & Soin, 2014), rather serving and supporting the paradox of opposing demands (Gschwantner & Hiebl, 2016).

6.4. Conclusion

The studies show a wide variety of potential assessment variables that can be categorized in one or more variables of the framework underlining the paradox of this dissertation. Despite strong theoretical suggestions, the extended extant MCS literature is not clear on how to assess a functional functioning of the MCS. The studies show that an effective and/or efficient MCS, how the MCS works and the effect on performance of the MCS are researched, but if and how the MCS is functional for the contingent situation and the specific organization's strategy has not received theoretical attention.

Opportunities are present in the studies that provide research directions coinciding with the MCS purpose of supporting strategy execution (Coller et al., 2018). There is also the paradox that MCS displays a certain resistance to change, and MCS plays a role in producing change. Studies unintentionally underscore the ambidexter challenge of the MCS of supporting exploitative AND explorative strategies, meanwhile dealing with the opposing demands in the formal and informal systems. E.g. Corporate Social Responsibility (CSR) affects organizations objectives as organization are required to balance exploiting existing activities, meanwhile implementing an explorative CSR strategy (Caputo et al., 2017; Gond et al., 2012; Hosoda, 2018). Another challenge is optimizing of the formal information system with modern technologies to promote organizational learning capabilities from both ambidexter perspectives (Daskalova & Ivanova, 2019; KAYA et al., 2019).

	Studies / year Sorted by author	Cursory description from the abstract	Textual highlights underscoring the opposition and/or paradox affecting a functioning MCS related to the variables (major themes) to the conceptual framework.	The variables (major themes) of the conceptual framework related to the researches	Key words
1.	Arjaliès, D. L., & Mundy, J. (2013). The use of management control systems to manage CSR strategy: A levers of control perspective. Management Accounting Research	This research suggests that the use of MCS has the potential to contribute to society's broader sustainability agenda through processes that enable innovation, communication, reporting, and the identification of threats and opportunities	This research suggest that companies seek to attain their CSR objectives by enabling managers to identify and manage threats and opportunities associated with CSR strategy, thus forming processes that support organizations in their attainment of both the explorative and exploitative strategic objectives. Quotes from the organizations researched underscore the oppositions: "In the future, we want to improve the reliability of our indicators".	Environmental factors	MCS supporting the Corporate Social Responsibility agenda
2.	Aziz, N. A. A., Yau, F. S., San, O. T., & Attan, H. (2015). A Review on Green Integration into Management Control System. Procedia - Social and Behavioral Sciences	This paper reviews on the role of management control system (MCS) in managing environmental or green issues and the extent of green integration into MCS	This research investigates green integration into planning and monitoring systems and by using formal and informal controls.	Moderators	Green integration in formal and informal controls
3.	Caglio, A., & Ditillo, A. (2008). A review and discussion of management control in inter-firm relationships: Achievements and future directions. Accounting, Organizations and Society	A review of the theoretical and empirical literature on management control in inter-firm contexts by organizing contributions according to the breadth of the control solutions they investigated, i.e., control archetypes, management control mechanisms, and cost and accounting controls	In this research, the management control mechanisms are highlighted that management appropriate concerns and the coordination of tasks, which need to be dealt with through formal inter-firm control mechanisms—distinguished in outcome and behavior—and informal mechanisms such as partner selection and trust.	Moderators	Through formal inter-firm control mechanisms resulting in informal outcome and behavior

Studies / year Sorted by author	Cursory description from the abstract	Textual highlights underscoring the opposition and/or paradox affecting a functioning MCS related to the variables (major themes) to the conceptual framework.	The variables (major themes) of the conceptual framework related to the researches	Key words
4. Albertini, E. (2019). The Contribution of Management Control Systems to Environmental Capabilities. Journal of Business Ethics	A conceptual framework of management control levers that show how companies can enhance (1) stakeholder integration capability; (2) shared vision capability; (3) organizational learning capability; and (4) continuous innovation capability.	This research highlight that corporate businesses will be significantly constrained by and dependent upon ecosystems and natural environment in the future affecting both formal and informal systems. In other words, it is likely that environmental strategy and competitive advantage must be rooted in capabilities that facilitate environmentally sustainable economic activity. This perspective underscores the ambidexterity for this research that organizations need to adapt for continues financial and other organizational performance outcomes.	Organizational antecedents	Formal and informal organizational capability to adapt to ambidexter circumstances
5. Awadh Bin-Nashwan, S., Abdullah, N. S., & Obaid, M. M. (2017). a Review of Literature in Management Control System (Mcs), Business Strategy, and Firm'S Performance. *International Journal of Management Research & Review*	Match the appropriate control system with the right strategy, and implementation of an efficiency-based strategy to lead to higher performance	MCS offers strategic direction for firms to be more innovative in making efforts so that their competencies in production can sustain up resources for innovative activities. The main issue of this study is firms need to continually regenerate their businesses to last and thrive in a multifaceted and ambiguous environment. MCS is to offer information, which is useful for managerial decision-making, planning, monitoring, and evaluation of organizational activities to change employee behavior and frame the MCS in a business strategy that can produce a sustainable competitive advantage which would enrich the firm's performance.	Organizational antecedents	Information to change employee behavior

Studies / year Sorted by author	Cursory description from the abstract	Textual highlights underscoring the opposition and/or paradox affecting a functioning MCS related to the variables (major themes) to the conceptual framework.	The variables (major themes) of the conceptual framework related to the researches	Key words
6. Coller, G., Frigotto, M. L., & Costa, E. (2018). Management control system and strategy: The transforming role of implementation. Journal of Applied Accounting Research	Implementation of management control systems (MCSs) in the MCS-strategy relationship with two archetypes of MCS implementation – waterfall and agile.	From two exploratory cases (longitudinal research), the fit or misfit between MCS and strategy is derived as a determinant in the MCS-strategy relationship. The paradox is that MCS displays a certain resistance to change, AND MCS plays a role in producing change, as it collects and conveys information to be considered for acting and deciding.	Organizational antecedents	MCS as an agent of change
7. Daskalova, M., & Ivanova, D. (2019). How big data affect management control systems. International Conference on Creative Business for Smart and Sustainable Growth	The extent to which Big Data has on the MCS and what constructs companies face by using it as a tool of improving the implementation of the strategy.	This research emphasizes management control as a behavioral problem and that the Big Data included the MCS should support the management decision-making process to convey useful information to assist managers in their jobs and decision-making to efficiently and effectively achieve desired organizational goals.	Organizational antecedents	MCS's paradigm to include Big Data to solve the behavioral problem to achieve organizational goals
8. Davila, T. (2000). An empirical study on the drivers of management control systems' design in new product development. Accounting, Organizations and Society	The relevance of the project uncertainty and product strategy in the design of management control systems. Better cost and design information has a positive association with performance, but that time information has a negative effect	This research explores whether MCS helps or hinder product development performance, supporting the relevance of uncertainty and strategy to explain the design of management control systems.	Organizational antecedents	Circumstances whether MCS supports or helps product strategy.

	Studies / year Sorted by author	Cursory description from the abstract	Textual highlights underscoring the opposition and/or paradox affecting a functioning MCS related to the variables (major themes) to the conceptual framework.	The variables (major themes) of the conceptual framework related to the researches	Key words
9.	Adib, M., & Zhang, X. Z. (2019). The risk-based management control system: A stakeholders' perspective to design management control systems. *International Journal of Management and Enterprise Development*	A conceptual model of management control considering the risk of stakeholders.	This research promotes to include stakeholder analysis within MCS to help organizations understand their competitive advantages and disadvantages regarding stakeholders. It will also help them predict what they will do in the future and therefore, how they can stay ahead. The governing thought in this article is that if organizations know how stakeholders have behaved in the past, they can better predict how they will behave in the future and how they can respond to any change in their strategies.	Moderators	Include stakeholders analysis in the MCS.
10.	Caputo, F., Veltri, S., & Venturelli, A. (2017). Sustainability strategy and management control systems in family firms. Evidence from a case study. Sustainability	The aim of this paper is to investigate how the integration of new forms of sustainable control systems (SCSs) and traditional management control systems (MCSs), and the use of these control systems affect the integration of sustainability within organizational strategy.	Evidence of the external and internal factors relevant in affecting the organization's pathway towards sustainability integration	Organizational antecedents	Integration of sustainability control systems with MCS
11.	Davila, T., Foster, G., & Li, M. (2011). Designing Management Control Systems in Product Development: Initial Choices and the Influence of Partners. SSRN Electronic Journal	The role of formal management control systems within innovation processes remains ambiguous. Traditionally, these systems have been associated with mechanistic organizations that repeatedly perform the same routines with little if any changes.	This research shows the paradox of that MCS can hinder innovation but can also enhance it.	Organizational antecedents	MCS hinder and/or support innovation

Studies / year Sorted by author	Cursory description from the abstract	Textual highlights underscoring the opposition and/or paradox affecting a functioning MCS related to the variables (major themes) to the conceptual framework.	The variables (major themes) of the conceptual framework related to the researches	Key words
12. Gond, J. P., Grubnic, S., Herzig, C., & Moon, J. (2012). Configuring management control systems: Theorizing the integration of strategy and sustainability. Management Accounting Research	Research that mobilizes a configuration approach to theorize the roles and uses of management control systems (MCSs) and sustainability control systems (SCSs) in the integration of sustainability within organizational strategy.	This research proposes a process whereby management control systems contribute to a deeper integration of sustainability within organizational strategy.	Moderators	A MCS process to include sustainability
13. Hosoda, M. (2018). Management control systems and corporate social responsibility: perspectives from a Japanese small company. Corporate Governance (Bingley)	Formal and informal control systems can support the motivation of employees and the integration of stakeholders' opinions on the implementation of CSR activities	This research showcase that formal and informal control systems can support the motivation of employees and the integration of stakeholders' opinions on the implementation CSR activities.	Organizational antecedents	A MCS process to include CSR activities
14. Hristov, I., Appolloni, A., Chirico, A., & Cheng, W. (2021). The role of the environmental dimension in the performance management system: A systematic review and conceptual framework. Journal of Cleaner Production	This research is an attempt to strategically align environmental dimension of sustainability with the performance management system.	The aim of this research is to propose a conceptual model for integrating environmental drivers through a scorecard-based tool aimed at supporting strategic alignment.	Organizational antecedents	Include environmental performance drivers in the MCS

Studies / year Sorted by author	Cursory description from the abstract	Textual highlights underscoring the opposition and/or paradox affecting a functioning MCS related to the variables (major themes) to the conceptual framework.	The variables (major themes) of the conceptual framework related to the researches	Key words
15. Pondeville, S., Swaen, V., & De Rongé, Y. (2013). Environmental management control systems: The role of contextual and strategic factors. Management Accounting Research	This study examines the role of contextual and strategic factors in the development of environmental management control systems in manufacturing companies.	This article states that companies that perceive greater ecological environmental uncertainty are less inclined to develop a proactive environmental strategy, environmental information system, or formal environmental management control system	Organizational antecedents	Limited inclination to include environmental factors in the MCS
16. Carlsson-Wall, M., Kraus, K., & Lind, J. (2011). The interdependencies of intra- and inter-organizational controls and work practices-The case of domestic care of the elderly. Management Accounting Research	This article shows the importance of collaboration and coordination between organizations and the need to extend the domain of control across organizational boundaries.	Inter-organizational social controls created an informal hierarchy that by-passed the formal hierarchies of the two organizations	Moderators	Inter-organizational social controls
17. Chenhall, R. H., Hall, M., & Smith, D. (2010). Social capital and management control systems: A study of a non-government organization. *Accounting, Organizations and Society*	This paper use the concept of social capital to outline a distinctive approach to understanding the interplay between management control systems and the development of social connections in and between organizations.	This article highlight the mixed and contradictory effects of management control systems on social capital, and provide a powerful illustration of the role of management control systems in brokering alliances and bridging structural holes.	Moderators	Contradictory effects of MCS on social capital

Studies / year Sorted by author	Cursory description from the abstract	Textual highlights underscoring the opposition and/or paradox affecting a functioning MCS related to the variables (major themes) to the conceptual framework.	The variables (major themes) of the conceptual framework related to the researches	Key words
18. De Ribeiro Campos, G., Donada, C., Mothe, C., & Nogatchewsky, G. (2019). The Respective Effects of Virtues and Inter-organizational Management Control Systems on Relationship Quality and Performance: Virtues Win. Journal of Business Ethics	Evaluate how individual virtues and inter-organizational management control systems (IOMCS) influence buyer–supplier performance through relationship quality	Interestingly, IOMCS lose their positive influence on relationship quality when considered along with virtues. This finding has resonance on integrating ethical elements and virtues to reinforce its positive effects on the practice of management	Moderators	Inter-organizational ethical elements influencing MCS
19. Meira, J., Kartalis, N. D., Tsamenyi, M., & Cullen, J. (2010). Management controls and inter-firm relationships: A review. Journal of Accounting & Organizational Change	A review of the literature on MCS and inter-firm relationships Supply chain and outsourcing have been the dominant forms of inter-firm relationships studied	The research debates that there is a relationship between information and trust. Either information creates trust or trust creates information or some combination of this.	Moderators	Influence of trust in inter-firm relationships on MCS
20. Pernot, E., & Roodhooft, F. (2014). The impact of inter-organizational management control systems on performance: A retrospective case study of an automotive supplier relationship. International Journal of Production Economics	This study investigates whether appropriate management control system (MCS) design of supplier relationships is associated with good performance	This article states that a MCS contingency misfit is associated with poor performance. This research also underscores the importance of informal control management, as formal controls appeared unable to overcome operational difficulties.	Organizational antecedents	Informal controls is able to overcome operational difficulties

Studies / year Sorted by author	Cursory description from the abstract	Textual highlights underscoring the opposition and/or paradox affecting a functioning MCS related to the variables (major themes) to the conceptual framework.	The variables (major themes) of the conceptual framework related to the researches	Key words
21. Laguir, L., Laguir, I., & Tchemeni, E. (2019). Implementing CSR activities through management control systems: A formal and informal control perspective. Accounting, Auditing and Accountability Journal	The study shows that organizations use different MCSs to manage CSR activities directed toward their salient stakeholders.	To implement CSR activities is mainly driven by the need to satisfy salient stakeholder demands, manage legitimacy and reputation issues, and meet top management expectations and enhance their commitment.	Moderators	CSR activities in MCS by stakeholders pressure on top management

Table 12: Identifying inter- and extra-organizational MCS themes

Chapter 7. Result from field research

We are prone to overestimate how much we understand about the world and to underestimate the role of chance in events. Overconfidence is fed by the illusory certainty of hindsight (Kahneman, 2011, p. 14).

This chapter aims to answer the second sub-research question and to understand how real-world practitioners assess a functioning MCS functional for its purpose. The visualized process from the cases, the thematic coding to the emergence of new themes, in Figure 21.
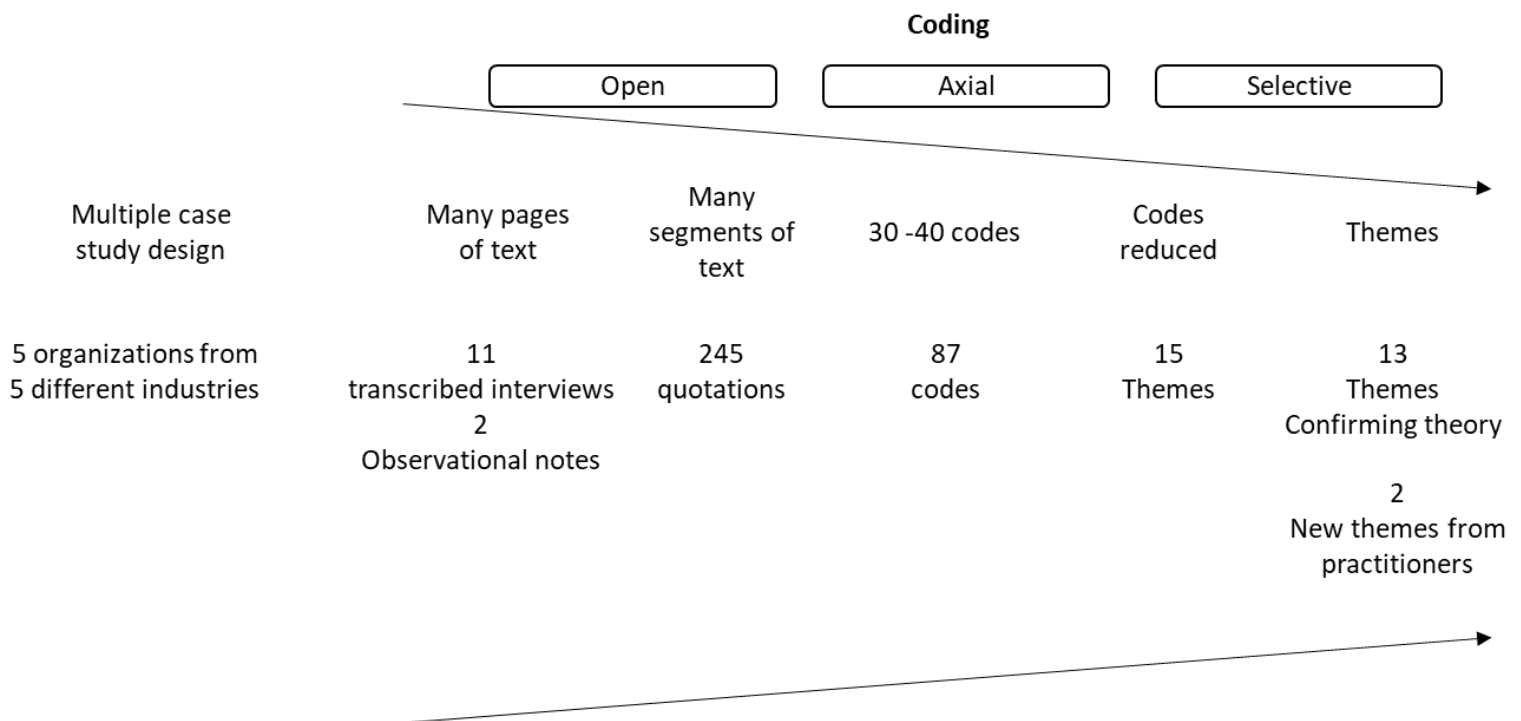
Figure 21: Thematic coding process in this research

Building on resource-based theoretical perspectives of Management Control Systems in Management Control context (Chapter 4), exploring the confines of the functioning Vs. functional MCS context (Chapter 5), and the organizational context in which the MCS operates (Chapter 6), this research stage uses an ontological agency theory approach to explore how practitioners purposefully or unintentionally assess a functioning MCS to be considered functional.

7.1.   Contingency theory paradox Vs. abductive ontological assumptions

From the previous three chapters, it can be concluded that there is a contingency theory paradox concerning the research assumptions in MCS research. The ontological research assumption is that reality is a layering of actual events with internal mechanisms and independent internal and external events that affect the real (Saunders et al., 2019, p. 135) and largely ignored by the epistemological assumption in MCS research of retrieving knowledge from business practices that researchers might not know but want to get and eventually communicate. This real word assumption is applicable in this dissertation to determine whether a MCS is considered functional as business dynamics prescribe a layering of paradoxes that cannot be researched and captured in a static single-case research approach. It should be clear that the behavior of systems cannot be known just by knowing the elements of which the system is made (Meadows, 2008, p. 7). Each case in this research followed the systematic approach as described in 2.3 Cross case study (RQ2), specifically Appendix B: Cross Case and case study protocol. Desk research, collecting facts and characteristics of the organization and the respondent, prior to each semi-structured interview, is conducted with the purpose of not having to ask the respondent regarding readily available information.

The purpose, therefore the design of the semi-structured interviews was to bring out the details from the participants' viewpoint (Ebneyamini & Sadeghi Moghadam, 2018; Tellis, 1997). The instrumental use of the approach is to identify potential new factors and moderators to further the theoretical-based conceptual map from stage two of this dissertation.

7.2.   Cases

Specifically, this dissertation investigates what can be learned from practice out of five different sectors in the Netherlands so that the results of the study can be generalized, as research executed in one sector may question the generalizability of the findings. The multiple-case design allows for obtaining a complete picture as various case study designs can be employed, thus providing generalizing conclusions (Baškarada, 2014). The

multiple case study approach allows for finding meaningful parallelisms in the findings across the multiple case studies to increase research reliability (Yin, 1981a).

Organization and industry	Ann rev.[3] in € mill	Profit or not	No. of Employees	Function interviewee		Interview	Informed consent form
Organization A hospital care, ambulance care, home care, and elderly care.	€223	Semi-profit	3.500	1.	COO	On-site	√
				2.	Director Care	On-line	χ
				3.	Manager finance & procurement	On-site	√
Organization B Construction housing and infrastructure	€6.809	Profit	17.966	1.	CFO BAM Residential	On-line	√
				2.	Commercial Manager	On-site	√
Organization C is a discount retailer in the Dutch and Belgian home furnishing and decoration sector.	€330	Profit	2.300	1.	Chief Financial Officer	On-site	√
				2.	Manager Business Control	On-site	√
Organization D., Secondary Vocational Education	€157	Non-profit	1.714	1.	COO	On-site	√
				2.	Concern Controller	On-site	√
Organization E, Elderly Care	€176	Semi-	2910	1.	CEO	On-line	χ
				2.	Manager Finance & Control	On-site	√

Table 13: Characteristics of the invited case organizations

7.3. Data collection

In total, 11 (eleven) interviews were conducted between January and June 2022. The interviews lasted 1 up to 2 hours following the methodology described in Appendix C: Interview protocol. The purpose of the interview protocol is to ensure that the main topics of the research is systematically covered during the conversation. Each interview is recorded according to protocol. The semi-structured approach provided the flexibility of probing and asking follow-up questions. Roughly the first 10 minutes were not recorded for every interview because this time was used to explain the purpose of the study and to

collect the respondent's consent by agreeing with the informed consent form (Appendix A: Informed Consent Form). With received permission to record the interviews, full transcripts were subsequently generated. After the introduction and formalities, the semi-structured interview began according to protocol Appendix C: Interview protocol. In terms of interview questions, respondents were first asked to describe their current responsibilities followed by an introductory question. Then a specific question from organizational context according to themes generated from Chapter 6 (Organizational context) with an emphasis on the direction & decision themes (Chapter 4) to retrieve anecdotal evidence and "best practices" to assess their functioning MCS on the purpose of the MCS supporting strategy execution. In 2 (two) instances, observational notes are included. In the after-talk, when walking to the exit of the building, of the interview, potential important hearsay is noted from the interviewees. In total, 13 (thirteen) documents are available for the thematic analysis.

The aim of the approach is to collect the hearsay of the respondents that can be examined with the potential of adding potentially unknown factors, moderators, and performance outcomes to the academic body of knowledge of assessing a functioning MCS. The interviews followed the semi-structured approach. When respondents were asked about organizational factors that potentially limit the execution of strategies, respondents were given the opportunity to elaborate on the phenomenon, providing anecdotal evidence. According to protocol, I encouraged respondents to detail experiences of the functioning MCS. At the end of each interview, I asked respondents on events, issues, or experiences which I had not asked or had been discussed which they considered to be relevant to this research. In two cases this extended the interview with more than 30 minutes allowing me to collect additional valuable rich anecdotal evidence.

7.4.   Thematic analysis

To analyze the data, Atlas ti provides a clear auditable trail of the thematic analysis. The transcripts were read and re-read and coded. The coding process is

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[3] Annual reports 2021 as published on the websites of the organizations.

comprised of two distinct stages. In the first stage, codes were created close to the empirical data and had a lower level of abstraction. The open coding approach, combined with a semantic strategy allow me to go from many pages of text to many segments of text. As a natural occurrence during this open coding process I abductively repeated the open coding approach with each new interview. Meaning that with the second interview, I re-read the first interview and semantically re-evaluated the codes. This process was repeated with the third up to the last interview. Repeating the steps ensured inter-coding reliability and consistency in the coding process with the purpose to make sense of the data and to generate different representative units of codes. This process allowed for the identification of emerging themes. Atlas ti, as a tool aided with the coding procedure to comply with the academic rigor of a methodologically rigid research process. This process generated 245 (two hundred forty five) segments of text or quotations.

Before the data was analyzed, I transcribed all interviews using the Microsoft Word standard functionality to transfer voice to text. All files are on a portable computer for which only I have access to. My approach for the coding is that I used the method of the meaning of analysis context as the unit of analysis (Braun & Clarke, 2012; Maguire & Delahunt, 2017). The data is not coded sentence by sentence or paragraph by paragraph but coded for meaning. The Atlas ti 4.52 program is used for coding, theme generation and thematic analysis. The interviews are analyzed for each case using a thematic analysis (TA) approach following Braun and Clarke (2012) six-phase approach. TA is the process of identifying patterns or themes within qualitative data (Braun & Clarke, 2012; Maguire & Delahunt, 2017) and is a method for systematically identifying, organizing, and offering insight into patterns of meaning (themes) across a data set. This method identifies what is common to how a topic is talked or written about and makes sense of those commonalities.

The six-phase approach highlights the flexibility of this qualitative analytic method. These phases are

> (1) Familiarizing myself with the data. The process of transcribing includes reading the results over and over again to identify the main themes, and will become the basis of the write-up allowing the researcher to become

acquainted with the data (R. Kumar, 2011). Each case has a minimum of two interviews. The unedited transcripts varied from 8 up to 14 pages of text with no blank spaces. After providing some structure, without changing the meaning of the text, transcripts could be up to 20 pages.

(2) Generating initial codes. In this stage, I immersed myself in the data to create building blocks of analyses and to notice patterns across the data.

(3) Searching for themes. A theme is the result of sifting through the responses and organizing similar words and phrases, the concept-indicators, in broad initial thematic domains. Once a theme has emerged and recognized, it is provided with a code. A critical note in TA literature is that there is not a clear distinction between a coding or theme (Terry et al., 2017). Atlas ti aided in capturing something important about the data in relation to the research question and represents some level of patterned response or meaning within the data set. Additionally, Atlas ti aided my search to collect evidence from practitioners to assess their functioning MCS deductively. However, the interpretivist approach allowed me to inductively be open for the productive surprise that practitioners could add to the academic body of knowledge.

(4) Reviewing potential themes. Reviewing the themes was a recursive and often frustrating process because each time I reviewed the potential themes in relation to the coded data I discovered new codes and potential themes. Also, uncertainty emerged as there were contradicting themes. Is a theme a theme or just a code? Is the theme meaningful enough? In this stage I used a consulting method, MECE[4], from practice to clearly distinguish the themes. This was done so that themes would not overlap and were not repetitive. And be sure that the themes address my research question. The MECE method allowed me to arrange themes in a systematic order and to corral the themes. The MECE method permits the data to be "segregated,

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[4] MECE: Mutually Exclusive Collectively Exhaustive

grouped, regrouped and relinked in order to consolidate meaning and explanation"(Williams & Moser, 2019).

(5) Defining and naming themes. Each theme holds selected quotes and provides structure for the analysis providing a narrative to help me interpret my data and provide meaning. With the completion of open coding in the previous steps I transitioned to the axial coding of creating distinct thematic categories in preparation for selective coding, for the purpose of developing core codes.

(6)

The evidence of the thematic analysis in Atlas ti and ultimately in this dissertation.
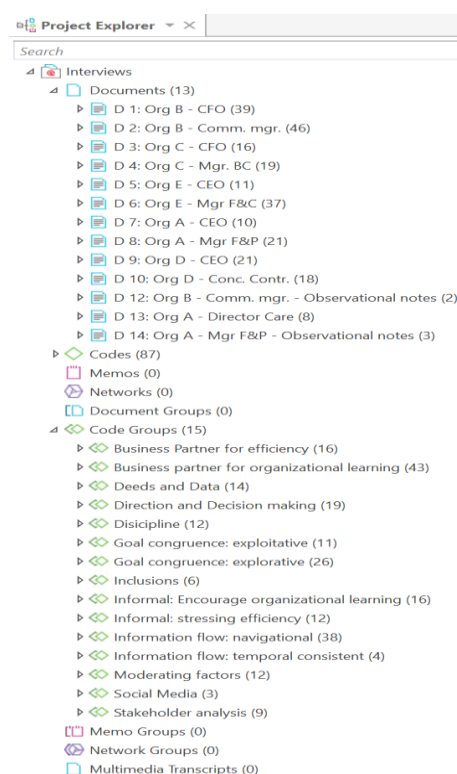
In the second stage, the quotations were axially analyzed by relating quotations with other quotations. The thematically grouped quotations generate more abstract "meta-codes" as preliminary generalizations emerged. The furthering sifting, refining and categorizing codes created distinct thematic categories in preparation for the selective coding stage. Immersing myself with the qualitative data was an iterative process. Every following interview that was analyzed prompted new codes based on quotations, which in turn triggered to reread previously analyzed transcripts or interviews to add new codes or re-code existing codes on previous interviews. Each iteration unveiled new codes. At this

stage, codes were linked between codes to triangulate comparative codes and identify consistent and conflicting codes. The coding iterations occurred in a non-linearly fashion until a stable set of 87 (eighty-seven) codes emerged.

The selective coding (third and final) stage examined the codes in the context of inductive and deductive analysis utilizing the academic knowledge from chapters 4 to 6. The selective coding enriched existing themes abductively AND identify themes NOT present in the theoretically generated themes from previous chapters. The selective coding process was a constant comparison, allowing me to progressively engage in the meaning of the transcripts' text and identifying textual subtleties and fueling the construct of meaning.

The 87 (eighty-seven) codes are grouped in 15 (fifteen) themes[5] including 2 (two) emerging themes not found in MCS theory. Thirteen themes confirm consistency with academic knowledge from previous chapters that practitioners use to purposely or unintentionally assess a functioning MCS. The themes are presented in Table 14.

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[5] In Atlas ti, code groups

Nr.	Themes	Description	Congruent with MCS theory
1.	Deeds and Data		Ch 4: MC context
2.	Direction and Decision-making		Ch 4: MC context
3.	Business Partner for efficiency		Ch 5: Functioning Vs. Functional
4.	Business partner for organizational learning		Ch 5: Functioning Vs. Functional
5.	Discipline		Ch 5: Functioning Vs. Functional
6.	Goal congruence: exploitative		Ch 5: Functioning Vs. Functional
7.	Goal congruence: explorative		Ch 5: Functioning Vs. Functional
8.	Informal: Encourage organizational learning		Ch 5: Functioning Vs. Functional
9.	Informal: stressing efficiency		Ch 5: Functioning Vs. Functional
10.	Information flow: navigational		Ch 5: Functioning Vs. Functional
11.	Information flow: temporal consistent		Ch 5: Functioning Vs. Functional
12.	Moderating factors		Ch 6: Organizational context
13.	Stakeholder analysis		Ch 6: Organizational context
14.	Social Media		Practitioners
15.	Inclusions		Practitioners

Table 14: Themes from interviews

7.5. Results of the analysis and findings

This sub-chapter presents the results from the case studies in their conceptual and practical meaning. As described in the methodology, a minimum of two interviews from two different echelons were taken per case. This approach allows for a comparative analysis between the organizational echelons and were used for the cross-case analysis. The findings follow the construct of the sections of the interview approach:

Section 1: MCS supporting strategy execution

Section 2: Factors used to assess the functioning of the MCS

7.5.1. MCS supporting strategy execution

In the strategy execution context, executives and non-executives are clear on organizational (sub-)objectives. In the context of the meaning, their answers can be easily related to the objectives found in documentation like the annual reports, websites and other public information. The answers of the respondents are easily connected to the theme of Direction and Decision. Executives are aware of the importance of complying with regulations. The executive of organization A is clear on the laws concerning health and hygiene measures to ensure a suitable working environment and clean working areas for employees. The executive of organization B is mindful of environmental regulations concerning construction. The non-executive of organization C directs work activities according to the internal rules and regulations of the retail organization while complying with European and national privacy regulations.

Both the executives and the non-executives focus on organizational objectives, as Figure 22 and Figure 23 visually present. The executives and non-executives believe that their formal IT-based systems are in place to support strategy execution. However, the interviewees do not provide clear examples of how the formal IT-based systems functionally support strategic exploitative or explorative decision-making.

Sankey diagrams

The evidence presented via Sankey diagram is a relevant analysis as it presents a proportional flow of the linkage between the themes and the interviewees. The proportional flow is related to the number of occurrences of the theme mentioned by each interviewee. Following this approach was to increase internal validity and raise the theoretical level of the analysis (Eisenhardt & Graebner, 2007; Gibbert, 2008).
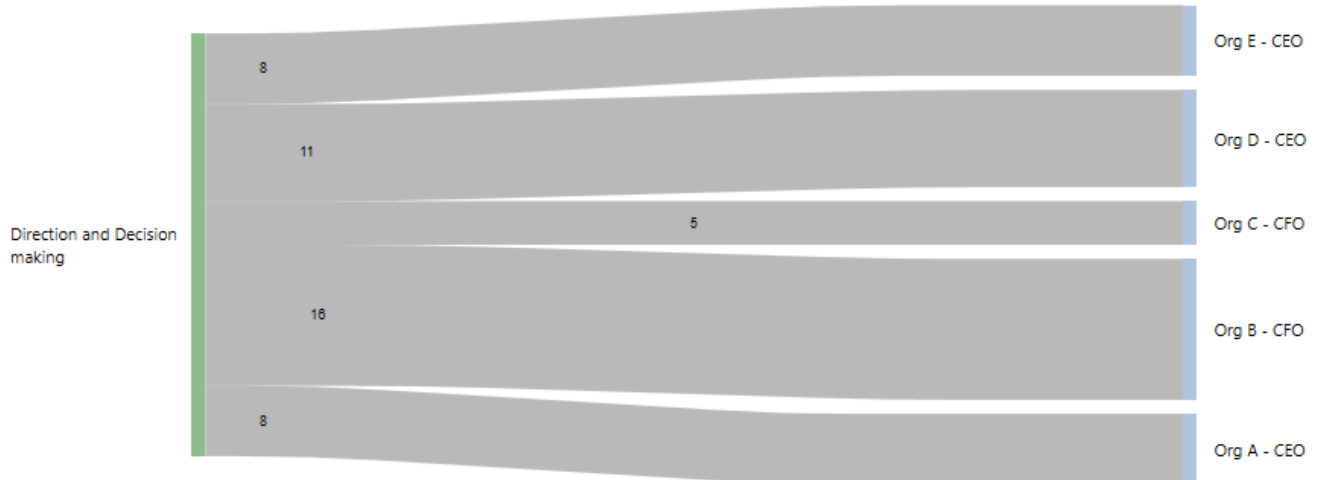

Figure 22: Focus on organizational objectives - executives

Formal IT-based information systems like performance management systems, Enterprise Resource Systems, and reporting systems are readily available. There is limited concern about the availability of information from their source systems for supporting decision-making. Interestingly, executives fuel suggestions for improvement based on their intuitions rather than relating the improvements to their management or organizational objectives. Their suggestions however, are not necessarily on the design of the IT-based systems, but instead on the execution of the use of formal systems by the informal systems. In other words, the users or the people involved in the execution of the functioning formal MCS. Three anecdotal evidences are provided to support the ontological finding in this section.
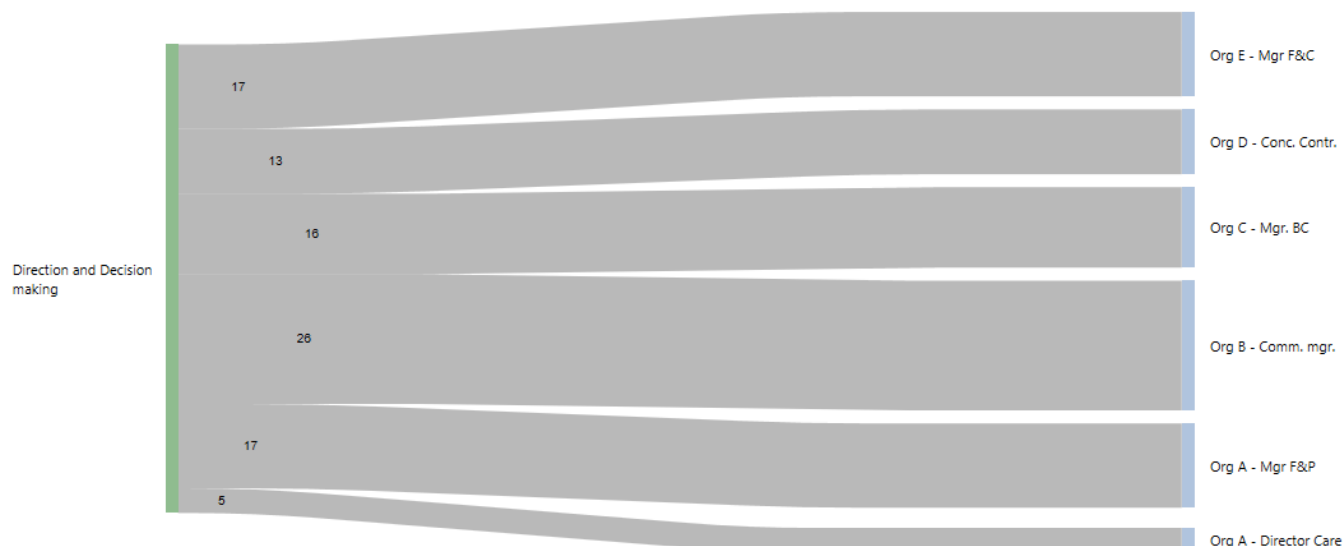
Figure 23: Focus on organizational objectives - non-executives

When elaborating on organizational objectives and the factors and moderators influencing strategy execution, both the executives and the non-executives tend to elaborate on the dynamism of the labor environment.

Unintendingly, both echelons focus on employees, the informal MCS, as the most crucial factor and moderator for achieving organizational objectives. More importantly, the current shortage of people to achieve both exploitative and explorative organizational objectives. An interesting moderator is the increased aging of employees. The aging of employees is a moderator, following the definition of Table 10 on page 83.

Organization D, COO

"The decisive factor for strategic success is disbursement. And specifically in the collaboration between students and employees. This is not self-evident, and cooperation does not happen automatically. We have calculated that 150 FTE will retire in 5 years."

The current shortage and the limited availability of potential new employees are seen as important moderators for achieving, or not achieving, organizational objectives. As the formal MCS can be designed, replaced, and even reinvented, the informal MCS is not easily adjusted, hinting that the ability to influence the working of the informal MCS

is paramount for a functional functioning MCS. For example, organization B explores digital technology like robotization to mitigate labor risks.

Organization B, Comm. manager

"We are working on robotizing a mason. Instead of building a wall brick by brick, the wall is built robotically in a factory and delivered as a jigsaw. Building a wall is more and more done pre-fab in a factory, because the people to mason are harder to get."

Organization E explores social innovation initiatives to mitigate labor risk and prevent expensive forms of care through better coordination between supply and demand. Digital technologies like a Care Watch, an alarm- and a monitoring system, are explored for that purpose.

Organization E, CEO

"Social innovation is high on our list of strategic priorities. We are in the midst of multiple social challenges, and that requires a transition in mindset."

In the hearsay of the interviews, it can be easily interpreted that technology can be considered both a factor and a moderator for assessing a functioning MCS. However, after some probing on the meaning of the responses of the interviewees, they do not explicitly see technology as a factor for a functional MCS. Interviewees might interpret technology as a potential moderator. However, in the context of meaning, technology is crucial for generating information for decision-making purposes emphasizing on achieving exploitative goal congruence. That is that to influence behavior of employees, technology is used to perform tasks more effectively. In the case of organization B, technology is considered a moderator to maintain or increase productivity. In the case of organization E, technology is seen as a moderator to better coordination and allow for optimization opportunities between the demand and delivery of care.

Inclusion

The strategy execution paradox is that a functional MCS is oriented toward the salient stakeholder of the executives and non-executives, namely the employees. The most important moderator of a functional functioning informal MCS are the employees. When probing questions were asked on behavior in the context of strategy execution, then the theme of inclusion emerges. In the context of meaning, both echelons see the practice of inclusion as both a factor and a moderator influencing the working of the functioning informal MCS. For the executives and non-executives, they focus on ensuring that people from different ethnic backgrounds feel a sense of belonging and support from the organization.

Organization B, Comm. manager

Dutch employees are difficult to find, and their attitude to work early morning and in often harsh weatherly conditions has shifted. Dutch employees rely on technology to make the work easier. When technology is not there, then work stops. At least it negatively influences the working mindset. Eastern European employees have the mindset to work under harsh weatherly conditions and they have the required skill set. They rely on their skills and use technology as an add-on.

Inclusion as a theme for assessing is relevant as the theme of inclusion is mentioned in four of 5 cases and by different echelons (Figure 24).

Figure 24: Inclusion as a theme from practitioners

Interestingly, the theme of inclusion does not stand by itself. The theme of inclusion can be seen as an independent informal MCS moderator when assessing a functioning MCS. Interviewees directly relate inclusion to strategy execution and with both exploitative and explorative objectives. The managerial challenge of inclusivity is not merely the managing of inclusivity in operational activities, but also at the executives' table.

Organization D, COO

"Inclusivity is important in our city, therefore our organization. Our teaching staff is predominantly white, while there is a rich diversity of ethnic culture among students."

The finding of inclusivity provides a rich ground for further research of assessing a functioning MCS to be considered functional.

Social media

The factor of social media is mentioned by three different organizations and from both echelons. Social media as a factor or a moderator influencing the functioning MCS is not as pure a factor or moderator like inclusion. The number of occurrences is limited

to 4 (four) times as a potential factor or moderator. It occurs as a theme in three organizations and in both echelons.

Figure 25: Social media a theme from practitioners

Organization D, COO

"Experience with the organization is all over social media. They just know. And it also determines how they look at this organization. That determines how they feel and think about this organization."

Anecdotal evidence on the theme of social media is limited. In this research, the theme of social media as a potential factor and/or mediator can be considered productive surprise and grounds for further research.

7.5.2. Assessing the functioning MCS

Echelon - executives

Executives unintentionally underscore the organic perspective of the informal MCS as the most important for assessing a functioning MCS. Executives focus on the explorative objectives, while their main concern is the explorative goal congruence. This is shown in Figure 26. Exploitative goal congruence is of limited concern.
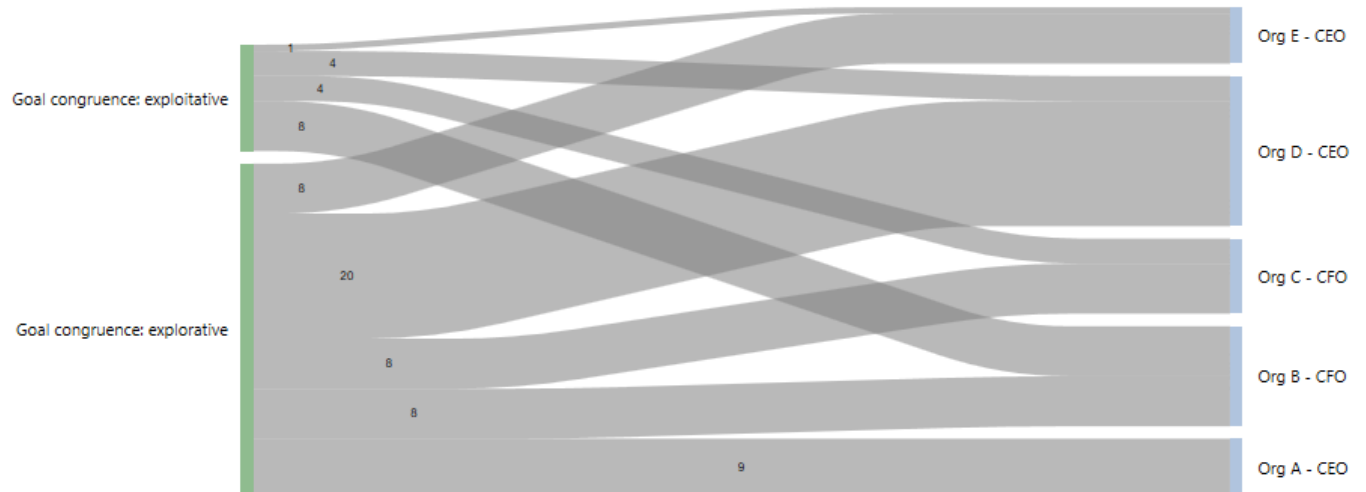
Figure 26: Exploitative and explorative goal congruence by executives

The goal congruence themes, both exploitative and explorative, presented via the Sankey diagram in Figure 26, underscore the opposing challenges of the executives. Executives do not purposely make a distinction between exploitative and explorative objectives. A critical note is that none of the executives distinguished between exploitative and explorative objectives. The distinction might create difficulties for assessing a functioning formal MCS, as the formal MCS needs to support an information flow with opposing objectives functionally.
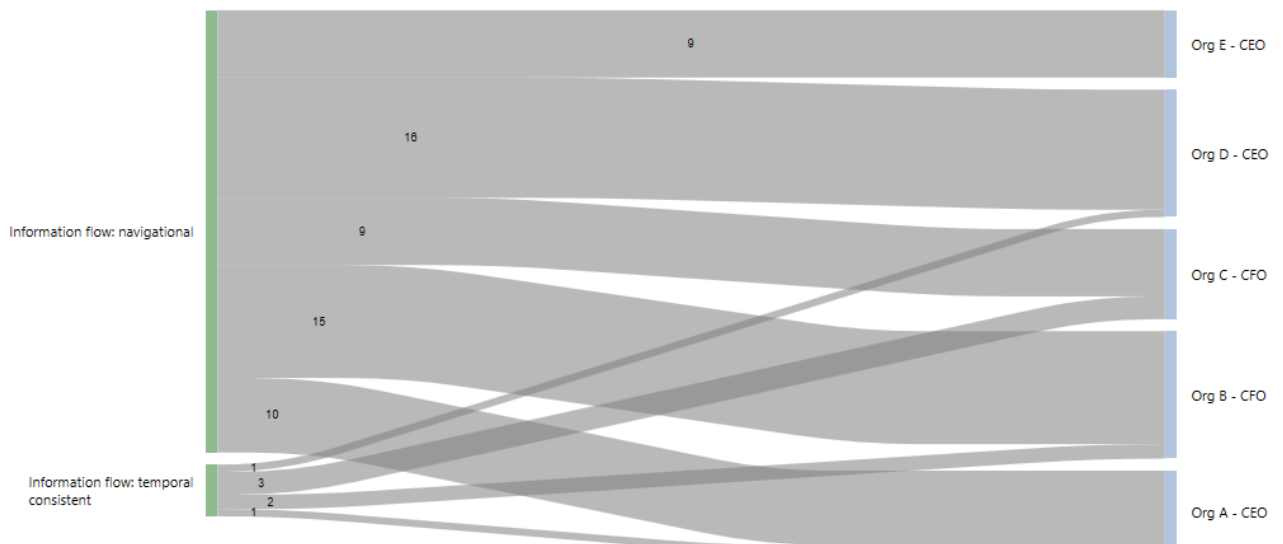

Figure 27: Desired vs. consistent information flow by executives

The fact that executives do not make a distinction between exploitative and explorative objectives might also create difficulties for the informal MCS. The organic sets of behaviors of the informal MCS produce performance outcomes that are difficult to relate to either exploitative and or explorative objectives directly. The executive's challenge is the communication efforts to present a clear imaginary position in the future as a representation of both exploitative and explorative organizational objectives.

Org B, CFO

We have, of course, all kinds of rules to comply with before information goes through the flow. What happens naturally, which I find very interesting, is that at some point, there is such a project that commits to that tendency. And, of course, I'm going to work on pushing them to operate inside those gates.

The above quote underscores that executives unintendingly require a navigational information flow, but contradictory rely on exploitative information flows from their information systems. This finding is similar to academic knowledge where MCS literature is replete on the effectiveness of the MCS design and use (Simons, 2013; Widener, 2007). Organizational leaders unintentionally challenge the functioning MCS, as they purposely influence the functioning vs. functional interplay with explorative assignments. The same organizational leaders challenge organizational status quos, while in contradiction, ask for an exploitative information flow while they demand an ambidexter information flow.

Echelon – non-executives

Non-executives are focusing on doing this right with a 'subjective' clear notion of doing the right things. There is congruence between the congruences of the two echelons. Interestingly, while executives are focused on doing the things right, with a 'subjective' clear notion of their organizational objectives. The paradoxical anecdotal evidence suggest that executives demand explorative behavior of their non-executives meanwhile debating exploitative performances with the same managers.

Org A, Mgr F&P

One clear strategic challenge seemed impossible to achieve. Financing a new building, our organization needed to achieve 9% result instead of the 'healthy' result of 2%.

From a strategic point of view, the reconciliation of exploitative and explorative objectives requires managers to balance a trade-off between opposing demands constantly. Interestingly, managers are more concerned with explorative goal congruence than with exploitative goal congruence. The comprehensive analysis provided by the Sankey diagrams Figure 28 and Figure 29 yields the insight that the non-executives are required to balance an ambidexter scale of exploitation and exploration.
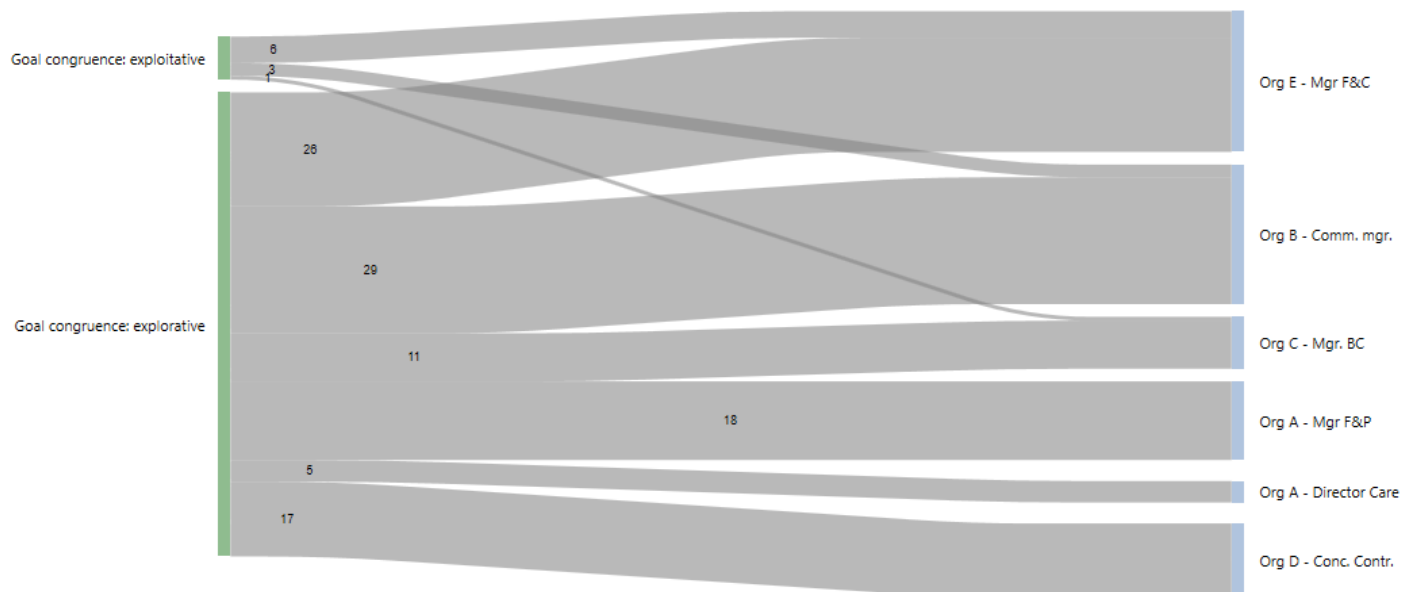
Figure 28: Exploitative and explorative goal congruence by non-executives

The non-executives rely on information for decision-making focusing on a navigation information flow rather than the current internal information. The Sankey diagram in Figure 29 presents this finding's evidence. Interestingly, this underscores that the formal MCS should provide a more navigational information flow. Like the executive echelon, managers base their decision on an information flow this not provided by current formal information system, therefore often based on experiences and shared assumptions about likely future events. The non-executives echelon acts not according to expected

financial outcomes, but to the pre-decided outcome of desired objectives. Intuition appears to be a moderator and a factor in the process of decision-making.

Figure 29: Desired vs. consistent information flow by non-executives
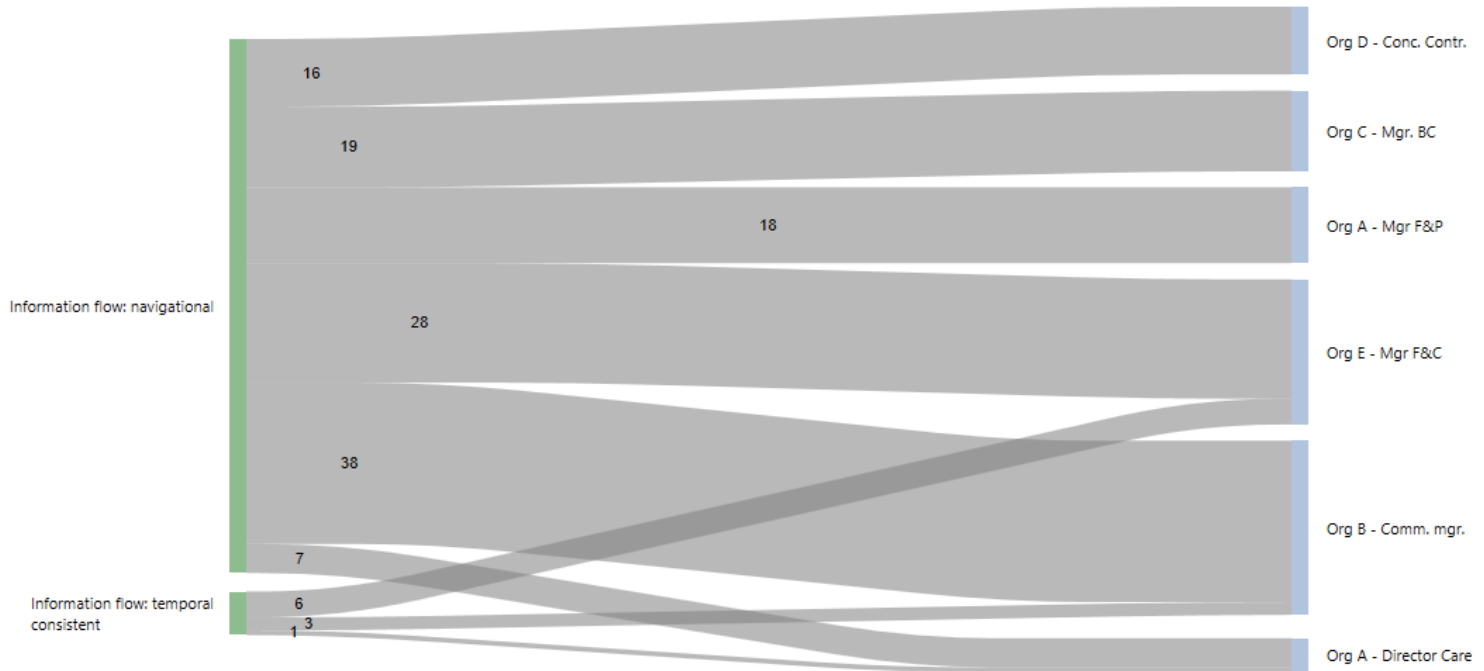
Insights from the instrumental use of the formal systems underscores that intuition can be a significant factor in decision-making, as the data-driven initiatives in Organization C prove. Out scope of this dissertation, but noteworthy, is that modern technological developments like Artificial Intelligence (AI) and machine learning (ML) have an inestimable effect on information technology, therefore the functioning MCS (Berente et al., 2021). In the case of Organization C, efforts and investments were taken to create data-driven decision-making to create better and more reliable forecasts. The approach of Organization C was to analyze the forecast evolution behavior of their real company data with to better forecasts. The mechanistic approach of analyzing data into a predictive analytical model produced similar results to the intuitively based predictions of employees working in the field. This finding highlights the importance of the information director to balance the more instrumental or exploitative data-driven method (Nurgazina et al., 2022) with the explorative principles of educating the organization with existing organizational knowledge (Klimczak & Shachmurove, 2021; Simsek, 2009).

Org C, Mgr. BC

I believe in data, and I know that more can be done than the gut feeling. People often regreen from the gut and that is mainly the people in the sales organization. These are the people who have been working in stores for years or are supervisors of several stores. They have a very good feeling and often their feeling corresponds quite accurately to what we see in our predictive data model. And sometimes there are contradictions. Now that I think about it, I think it makes sense.

7.6.   Conclusions from field research

The conclusions of retrieving knowledge from practitioners reveal that organizational leaders do not purposefully assess a functioning MCS fit for purpose. The unintentional assessment of the MCS by organizational leaders is intuitively executed with factors and moderators known in MCS academic knowledge, except the factor of inclusion. The underlying driver is that organizational leaders are unaware of the concept of ambidexterity. The finding is that organizational leaders do not purposefully distinguish exploitative and explorative objectives, therefore, not purposefully distinguish between exploitative and explorative strategy execution. Interestingly, financial executives were focused on the exploitative side of getting the basics right with opportunities for digital initiatives to better the formal system. In contrast, the non-financial executives were focused on an imaginary position in the future and focused on informal and inter- and extra-organizational factors.

Unintentionally, organizational leaders emphasize on the informal system when assessing the functioning MCS. MCS theory and the findings from the field research underscore that the informal systems may behave in such a way that they produce their own pattern of behavior (Meadows, 2008, p. 2), but the same behavior can equally restrain opportunities to achieve explorative objectives.

Organizational leaders believe that their individual organization operates in an unpredictable extra-organizational context. Ideally, their organizations can develop the strategy and then design the MCS to execute the chosen strategy. Their restraint is that the

MCS is functioning and supporting their current strategic execution process. Their perspectives are that their organizations operate in uncertain extra-organizational environments and that their contingent organizational strategies continuously need to evolve and emerge. Organizational leaders in these cases, have the imaginary capabilities to connect the present with distant organizational performances that require a navigational information flow more than an information flow based on information consistency. This finding can be considered the guiding principle how practitioners intuitively assess a functioning formal MCS.

Chapter 8. Conclusions, contributions, and future research

The comprehensive terms 'in control' or 'out of control' are increasingly used in business press and are beyond whether the organization is on the right track towards reaching its mission, goals, and strategies (Hartmann et al., 2021, p. 14).

The point of departure for this dissertation is to understand the problem of how to assess a functioning MCS being functional for its purpose. The dissertation's destination and conclusion are a conceptual map, based on the concept of ambidexterity, to assess a functioning MCS being functional for academics and practitioners where the functioning vs functional question can be considered a new MCS research paradigm.
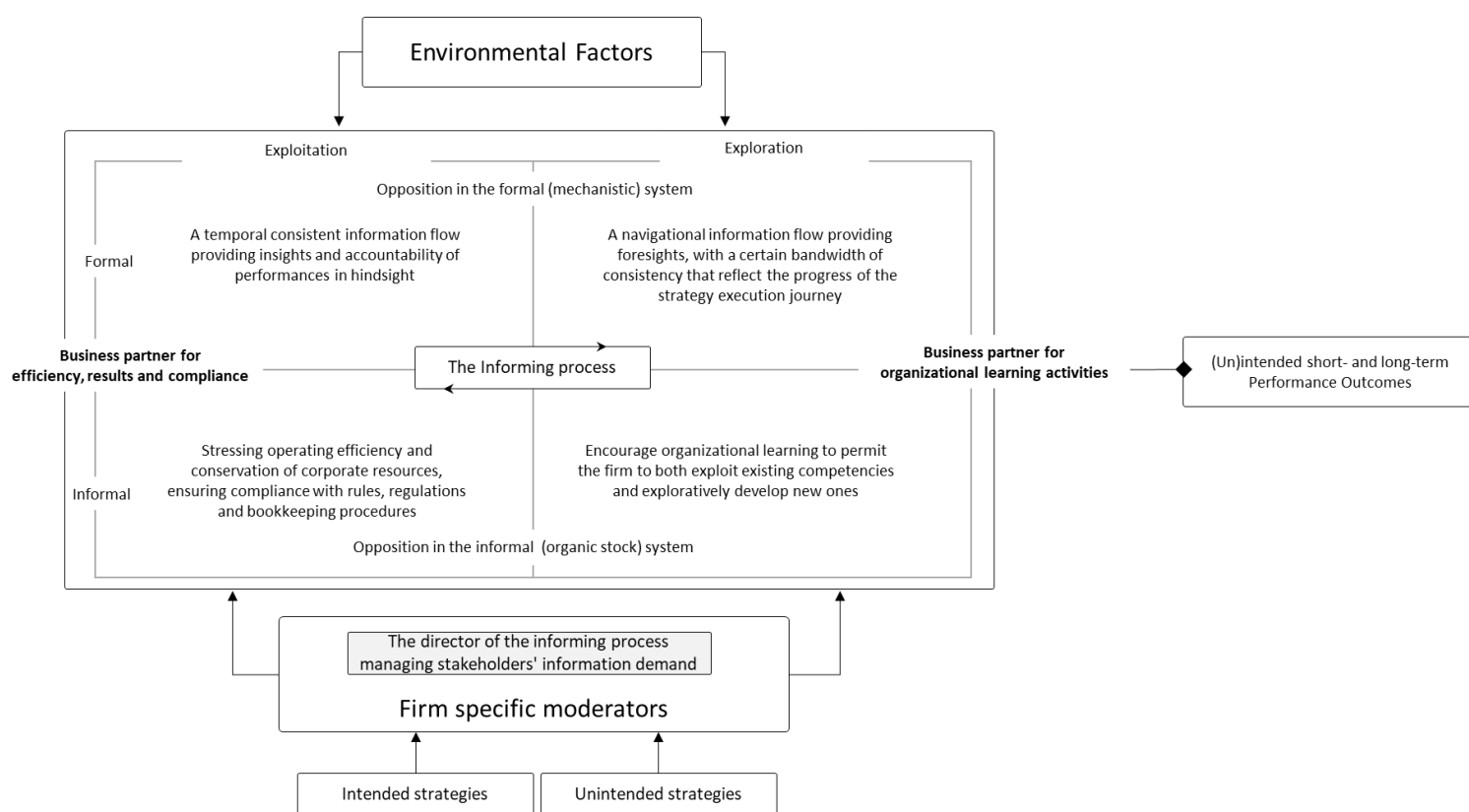

Figure 30: The conceptual map to assess a functioning MCS

The outcome of this research benefitted greatly from the constructive feedback during the Management Accounting Research Group (MARG 2021) conference at Aston University in Birmingham (United Kingdom) and the Annual Conference on Finance and Accounting (ACFA 2023) at Prague University of Economics and Business (Hungary)

where the synthesis of the concepts of ambidexterity with MCS underscores the MCS research paradigm. This dissertation's opening and concluding argument is that MCS theorists produce relevant theoretical knowledge into the language of practice AND synthesize practitioners knowledge in the research process (O'Reilly III & Tushman, 2013; Schiele & Krummaker, 2011).

8.1. Conclusions

The conclusion of this dissertation builds on three distinct stages. First, the conceptual framework is the conceptual map's foundation to research opposing yet coexisting demands. The second stage is to enrich the conceptual map with existing theoretical MCS knowledge and the organizational context in which the MCS functions. The final stage is the capture of knowledge from practitioners on how practitioners assess their functioning MCS.

8.1.1. Stage 1

The conclusion and the outcome of the first stage is identifying a relevant conceptual framework as the foundation for this dissertation's intended destination to research the opposing demands of a functioning MCS. The conceptual insights of ambidexterity are borrowed from paradox theory and organizational learning theory and synthesized with the well-researched Management Accounting concept of the formal and informal MCS. The concept of ambidexterity has been called a research paradigm in organizational learning theory in the first decade of this century (Gibson & Birkinshaw, 2004; Raisch & Birkinshaw, 2008). The purpose of the MCS is to support the opposing demands of exploitative and explorative strategy execution. The concept of distinction between exploitative and explorative organizational objectives, has proven to provide fertile grounds for furthering organizational research bridging the gap between theory and practice (O'Reilly III & Tushman, 2013; Simsek, 2009; Simsek et al., 2009) and since then confirmed in multiple MCS researches (Paliokaite & Pačesa, 2015; Taródy, 2016).

8.1.2. Stage 2

The conclusion of the second stage is the formulation of the ambidexter formal and informal components of the conceptual map to assess a functioning MCS. The conceptual map stage allows academics to assess a functioning MCS supporting exploitative and explorative strategies, as a MCS cannot operate as a static system.

The conclusion is the answer to the first sub-question on what can be learned from MCS theory to assess a functioning MCS. The first outcome is that a functional MCS is required to produce a balanced ambidexter-informing process dealing with the opposing demands of exploitative and explorative strategy execution.

1. The MCS supporting exploitative strategies is a functioning formal system that produces a consistent information flow providing insights and accountability of performances in hindsight. The exploitative formal system interplays with the exploitative informal system encouraging organizational behavior and supporting decision-making for managers stressing operating efficiency and conservation of corporate resources, and ensuring compliance with rules, regulations, and bookkeeping procedures.

2. The MCS supporting explorative strategies is a functioning formal system that produces a navigation information flow providing foresights with a certain bandwidth of consistency that reflects the progress of the explorative strategy execution journey as a navigation system does. The measures of the navigation system information include data from outside of the organization, which cannot be checked for reliability. The explorative formal system interplays with the explorative informal system encouraging organizational learning to permit an organization to both exploit existing competencies and exploratively develop new ones.

The second outcome occurs naturally from the first outcome, as the information centrality fuels the importance of the information director and or business partner. Where formal control systems can be easily disposed or re-designed to a fit-to-strategy formal

system (Frigotto et al., 2013), the informal system of behavior and mentality is not so easily adjusted. It is essential to understand that exploitative and explorative formal and informal systems must be understood as a package.

First is the configuration of the exploitative and explorative formal information flows, and the second is how exploitative and explorative information flows relate to each other. Both the exploitative and explorative information flows need to connect and interact with the informal systems via a multi-layered cultural phenomenon across various contexts, guiding individual decision-making and behavior (Andersen & Lueg, 2017).

The business partner must deal with organizational leaders who ask for an exploitative information flow, while demanding an unspoken explorative information flow. The same organizational leaders ask for a business partner for efficiency and short-term results with instrumental skills based on inference information, meanwhile demanding a business partner with skills to encourage organizational learning capabilities to help navigate the organization among dissipating plains. In managing the tensions of the ambidexter information flows, the producer of the information flow needs to decide to tactfully and judiciously distribute the information or not (Puyou, 2018).

The information director and/or business partner has the daunting task of encouraging behavior among leaders and managers to be comfortable trusting the ambidexter information flow to support opposing exploitative and explorative objectives. The exploitative-oriented business partner focuses on supporting current and future exploitative business activities stressing short-term results. The explorative-oriented business partner focuses on a planning process to build on employees' commitment to partially consistent organizational objectives. The information director and or the business partner are pivotal levers for a functional functioning MCS.

8.1.3. Stage 3

The thematic analysis concludes that organizational leaders do not purposefully assess a functioning MCS fit for purpose. The finding is that organizational leaders do not

purposefully distinguish exploitative and explorative objectives, therefore not purposefully distinguish between exploitative and explorative strategy execution.

Unintentionally, organizational leaders put an emphasis on the informal system when assessing the functioning MCS. Organizational leaders' assessment of the MCS is intuitively executed with factors and moderators known in MCS academic knowledge. The theme of inclusivity is a factor and a moderator unknown in academic MCS literature that organizational leaders use to assess their functioning informal MCS. Paradoxically, organizational leaders challenge the MCS's current status quo, which is designed and in use to emphasize efficiency and maximize existing resources for short-term earnings.

The opposing demands of the functioning exploitative-oriented MCS with the demanded explorative MCS create challenges for a functional strategy execution process. The short-term exploitative performances of the informal MCS are easily measured and monitored with results from the formal information systems. Long-term explorative organizational performances of the formal and informal MCS requires imagination to overlook distant times, distant places, and failures.

Organizational leaders unintentionally challenge the status quo of the pre-dominantly exploitative oriented functioning MCS, both the formal and informal systems, with explorative assignments. The same organizational leaders ask for an exploitative information flow while demanding an unspoken explorative information flow. In parallel, the same organizational leader asks for a business partner for efficiency and short-term results with instrumental skills based on inference information, meanwhile demanding a business partner with skills to encourage organizational learning capabilities to help navigate the organization among dissipating plains.

The paradoxical challenge for organizational leaders is to bridge and align exploitative decision-making and behavior with the imaginary consequences of explorative decision-making and behavior. Consequently, organizational leaders have limited awareness of the balancing act that a functional functioning MCS needs to support on both sides of the ambidexter axis.

8.2.   Theoretical and managerial contribution

This dissertation contributes to current MCS literature in three ways. The first contribution is that this study connects theory with practice as the conceptual map is useful for both theorists and practitioners, as called by multiple researches (Demartini & Otley, 2020; Merchant & Otley, 2020; Reimer et al., 2016). To bridge the gap between academics and real-world practitioners, this dissertation motivates the interpretivist approach to increase the bandwidth of methodological rigidness to abductively expand MCS search to other research areas.

The conceptual map with a distinction between exploitative and explorative organizational objectives is a helpful tool for practitioners as the conceptual map creates clarity to assess the exploitative formal and informal MCS next to the explorative formal and informal MCS. Where the exploitative strategy execution stresses maximizing short-term results, the explorative strategy execution encourages the development of future earnings and, at the same time, maximizing current earnings. The conceptual map discloses multiple research avenues on how researchers and real-world practitioners can assess a functioning MCS providing multiple bridges to connect theory with real-world practice. The juxtaposed conceptual map can be researched independently of other sections, illuminating under-investigated research avenues.

The second contribution is the paradoxical perspective of ambidexterity in MCS research. Ambidexterity underscores the paradoxical tension that a MCS needs to mediate in supporting intended and unintended organizational strategies (Gschwantner & Hiebl, 2016; Hanzlick & Brühl, 2013). Ambidexterity can be considered a MCS research paradigm as a medley of the two concepts can provide rich grounds for furthering the functional debate in MCS research. The paradox framework (Lewis, 2000) helps to guide the ambidexter explorations of a functional MCS of paradoxical (both/and) thinking as supposed to the conventional mechanistic trade-off (either/or) in MCS research.

The third and final contribution is that organizational decision-makers do not purposely assess whether their functioning MCS is functional. Exploitation and exploration compete for the same scarce resources and attention, which is enormously challenging, and involves some potential tradeoffs (Simsek, 2009) that influences the working of their current MCS. Decision-makers unintentionally challenge the exploitative formal and informal MCS with explorative motives. Their paradoxical challenge is not the formulation and communication of the objectives and translating them into formal and informal objectives. Their paradoxical challenge is to bridge and align exploitative decision-making and behavior with the imaginary consequences of explorative decision-making and behavior.

8.3. Limitations of this research

The conclusions of this dissertation need to be interpreted in the context of potential limitations. At the same time, the limitations serve as starting points for future investigations, as the paradoxical findings richly suggest. This dissertation has provided insights that a considerable body of knowledge provides a solid base for generic paradoxical propositions between the elements of the MCS, the MCS holistically, and the context in which the MCS needs to perform functionally.

The first limitation is that the results of the systematic literature review debate three distinct MCS perspectives, which are based on a selected sample of academic publications. More perspectives can be researched to assess a functioning MCS. First, the case studies are cross-sectional. Therefore, it would be difficult to strictly infer causal relationships between the interplay of the components of the conceptual map and or the interplay between the proposed business partner propositions and or the environmental factors and moderators of the conceptual map. Second, I cannot completely rule out the impact of my personal bias on the findings, although several steps were to reduce the likelihood of this. Third, the factors from practitioners are based on the personal judgment of the individuals who are interviewed. Fourth, the conceptual map is constructed but not deeply researched or proven. Future research can also examine additional components and or attributes of MCS practices that may be important for assessing a functioning MCS.

The second limitation is that though the start and the aim of the research logic for this dissertation are clear, the finish of the research does not prove absolute clarity as the paradoxical findings are not stable over time and the researched cases. This unclarity in retrieving knowledge from practitioners can be interpreted that case studies providing little basis for scientific generalization (Yin, 1981b). The argument in this dissertation is that what was previously regarded as a problem must now be recognized as an opportunity to bridge the nexus of the rigor of research with the relevance for practice (Posner, 2009).

The research in this paper is drawn on the extant MCS literature, inductively reasoning the content of the data. From personal observations in various organizations over the last decades, practice is ahead of academic theory. Technological advances, new legislation, digitization of the workforce, pandemics, and naturally occurring events (e.g., new CEO) have influenced functioning MCS's to be functional or not. As this research originates as academic-led, with academic knowledge being transferred to practice, it is a call for practice-led research, with the academic contribution being relegated to the description and perhaps explanation of practice (Chenhall, 2003).

8.4. Suggestions for further research

Where MCS research is replete utilizing the exploitative perspective of the business partner with a myriad of methods and technology, the explorative perspective for a business partner has received limited attention. MCS practices are affected by a multitude of factors, and the role of the controller should be at the center of it. Following the call for research to connect theory with practice (Merchant & Otley, 2020), the role of the business partner or the controller can be researched where the business partner is considered a lever for a functional MCS with the ambidexter information flow at its heart.

As Malmi & Brown (2008) suggested if the purpose of the MCS is to support ex-ante decision-making it should not be called a MCS. If planning is an integral part of the system that creates goal congruence, the system can be labeled as a MCS. This finding

motivates the call for empirical evidence for explorative exemplars. MCS research should not focus on 'average practices', but on exemplars that have been functional in strategy execution, dealing with the discussed paradoxes in this research. Expanding the exemplars' bandwidth can involve leading-edge practice and failures or similarities across divergent settings to explain variations in practices (Merchant & Otley, 2020). The call for advancing MCS theory using exemplars is drawn from paradox (Lewis, 2000; Lewis & Smith, 2014; Smith & Lewis, 2011) and theory-building theory (Eisenhardt & Graebner, 2007; Gray, 2005; Post et al., 2020). This calls for field longitudinal research to prove the institutional practicality of paradoxical and or ambidexter MCS theory. Therefore, MCS researchers should visit practitioners to gain institutional knowledge and learn from practice. Field longitudinal research should prove that the paradoxes in this research might not be an exhaustive list, and the individual paradoxes need more research to be scholarly and clear, otherwise leading to parsimonious theories.

The paradoxical findings in this research can encourage contingency-based research to uncover generalizable findings on whether a MCS can be considered functional for an organization's unique strategy acting in its own dynamic context. By exploiting existing academic knowledge, this research urges explorative MCS research, an important avenue for future contingency-based research and to remain relevant for practice (Bedford & Malmi, 2015; Chenhall et al., 2010; Merchant & Otley, 2020). The conceptual map can be used as a foundation to research contingent practices and action-type activities, following changes and effects of management control systems supporting strategy execution. This is likely to enrich theory and assist practice. Such a research agenda might involve research areas such as strategy, information technology, organizational and cultural change, and human resource management as explorative MCS research might challenge mainly non-functionalist researchers. Contingency-based research integrated with functionalist research might provide integrative thinking about the sociological processes affecting MCS in action and combine these insights with conventional elements of contingency-based models (Chenhall, 2003). Directly related to this problem is that MCS research has difficulties capturing the knowledge from practitioners to solve the problem as the ontological layering of organizational reality has proven difficult to research.

Finally, while a plethora of MCS studies have examined the question of the design and use of the MCS, its effectiveness, the link with strategy, or extended the MCS research scope beyond organizational boundaries, it shows that the MCS concept has a fertile foundation with continuously emerging themes (Berry et al., 2009; Demartini & Otley, 2020; Reimer et al., 2016). The more meaningful question of whether a MCS is functional for its purpose has received limited attention as there are important reasons to answer this question. Organizations do not exist on their own as they are part of an environment where the speed of external dynamics is increasing. This dissertation shows that the assessment of a MCS is subjective as managers' make decision and action in relation to the desired outcome unlike making decision and action in relation to the intended goals.

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Appendix A: Informed Consent Form

Assessing the factors impacting functioning Management Control System (MCS) becoming dysfunctional beyond intra-organizational boundaries

PRINCIPAL INVESTIGATOR

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PURPOSE OF STUDY

The purpose of this study is to investigate factors that might have an impact on functioning Management Control Systems (MCS) becoming (dys-)functional beyond its intra-organizational boundaries. You are being asked to take part in this research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please read the following information carefully. Please ask the researcher if there is anything that is not clear or if you need more information.

STUDY PROCEDURES

You will be asked to participate in an interview allow the principal investigator to observe and interview you. The interview will take approximately one hour to one hour and a half of your time. The interview will be audio-recorded and will take preferably place at your

office or via video conferencing. In the case of video conference, several parts of the interview will be presented on the screen as this is part of the interview.

During this interview, you will be asked a series of questions. These questions are designed to allow you to share your experiences. Additionally, you will be asked to fill out a demographic sheet that will include demographic information and questions about what type of organization you work for and in which industry. The rapport of the interview will be sent to you for approval prior to being included in the research report.

RISKS

There are no known risks or discomforts associated with this research. Though you may decline to answer any or all questions, and you may terminate your involvement at any time if you choose.

BENEFITS

The information gained from this study may help us to better understand factors that have an impact on functioning MCS becoming dysfunctional. This will confirm what is academically known regarding this topic and add unknowns from your practical experience to what is academically known.

The results of the research may shed a fresh perspective on assessing your current MCS and provide some insights into how executives from other industries evaluate theirs.

CONFIDENTIALITY

Your responses to this research will be anonymous. During the interview, you will be asked to provide a pseudonym to ensure your identity. The audio-recording will be assigned the pseudonym that you pick during the interview. For the purposes of this research study, your comments will be mentioned using a pseudonym. Though the characteristics of the organization and the industry in which it operates will be described.

Every effort will be made by the researcher to preserve your confidentiality, including the following:

- Assigning code names/numbers for participants that will be used on all research notes and documents
- Keeping notes, interview transcriptions, and any other identifying participant information in a locked file cabinet in the personal possession of the researcher.

Participant data will be kept confidential except in cases where the researcher is legally obligated to report specific incidents. These incidents include, but may not be limited to, incidents of abuse and suicide risk. Once the interview is transcribed, the audio files, interview transcripts, and the documents you provide will be kept for five years in a locked digital cabinet on the personal drive of the principal investigator. The information obtained during this study may be published in scientific journals or presented at scientific meetings, but the data will be prepared as aggregated data.

COMPENSATION

You will not receive any type of compensation for participating in this study.

CONTACT INFORMATION

If you have questions at any time about this study, or you experience adverse effects as a result of participating in this study, you may contact the researcher whose contact information is provided on the first page. If you have questions regarding your rights as a research participant, or if problems arise which you do not feel you can discuss with the Primary Investigator, please contact the secretary of the EBU Review Board at (+352) 661 802 213.

VOLUNTARY PARTICIPATION

Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you decide to take part in this study, you will be asked to sign a consent form. After you sign the consent form, you are still free to withdraw at any time and without giving a reason. Withdrawing from this study will not affect the relationship

you have, if any, with the researcher. If you withdraw from the study before data collection is completed, your data will be returned to you or destroyed.

CONSENT

I have read and I understand the provided information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this study.

Participant's signature _____ Date _____

Name   _____

I hereby give consent to audio record my interview.

In my judgment I am voluntary and knowingly giving informed consent and possess the legal capacity to give informed consent to participate in this research study.

Investigator's signature _____ Date _____

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Appendix B: Cross Case and case study protocol

(Eisenhardt & Graebner, 2007; Höst & Runeson, 2007)

Stage	Activity	Approach
1. Background	• Identify previous research on the topic • Define the main research question being addressed by this study	• Provide better grounding of the topic • Improves generalizability, raises theoretical level and aids in sharpening MCS research constructs
2. Design	• Identify whether single-case or multiple-case and embedded or holistic designs will be used, and show the logical links between these and the research questions • Identify any propositions or sub-questions derived from each research question and the measures to be used to investigate the propositions	• The multiple-case design allows for obtaining a more complete picture as a variety of a variety of case study designs can be employed thus providing generalizing conclusions (Baškarada, 2014).
3. Case Selection	• Inclusion criteria for case selection	• Cases selected using maximum variation sampling strategy • Cases were selected because they allow an in-depth understanding of the research problem to identify academically unknown factors
4. Data Collection	• Define a data collection plan • Define how the data will be stored	• A single data collection method per case • Each case stored in a secure manner on the researcher's laptop and backup at the EBU secure network • Foster divergent perspectives from practitioners on assessing MCSs
5. Analysis	• Within case analysis	• Gain familiarity with data and preliminary theory generation

Stage	Activity	Approach
	• Identify the criteria for interpreting case study findings • Identify which data elements are used to address which research question/sub question/proposition and how the data elements will be combined to answer the question • Consider the range of possible outcomes and identify alternative explanations of the outcomes, and identify any information that is needed to distinguish between these the analysis should take place as the case study task progresses	• Within case analysis presented as an analysis per case • Cross case analysis as an opportunities to look beyond initial impressions and see evidence through multiple lenses due to multiple case study approach • Identify replication logic across cases to confirm, extend and sharpens findings
6. Plan Validity	• Construct validity - show that the correct operational measures are planned for the concepts being studied. • External validity – identify the domain to which study finding can be generalized.	• Tactics for ensuring this include using multiple sources of evidence, establishing chains of evidence, expert reviews of draft protocols and reports • Tactics include using theory for single-case studies and using multiple-case studies to investigate outcomes in different contexts.
9. Study Limitations	• Specify residual validity issues including potential conflicts of interest	• Selected case are within the business network of the researcher
9. Reporting	• Identify target audience, relationship to larger	• MCS researchers • Mid-size to larger organizations whom activities have an effect on inter- and/or extra-organizational activities
10. Schedule	• Give time estimates for all the major steps: Planning, Data Collection, Data Analysis, Reporting.	• Research plan including timeframe limited by the capabilities and resources of the researcher.

Appendix C: Interview protocol

Name: _____   Date:_____

Pseudonyms:_____

Introduction

☐ Introduce myself

☐ Discuss the purpose of the study

☐ Ensure participant consent letter is signed

☐ Review and discuss the intent of the research

☐ Review confidentiality and interview times schedule (approximately 60 minutes)

☐ Provide structure of the interview (audio recording, taking notes, and use of pseudonym)

☐ Ask if they have any questions

☐ Test audio recording equipment. Commence recording and start with the interview questions

☐ SMILE-make the participants feel comfortable

☐ Factors from the systematic literature research

☐ Prompt cards containing

     o   Organization objectives

     o   Information systems in use

     o   Factors identified from academic understanding

☐ Allow participant to ask questions

☐ Thank the participant

☐ End protocol

C-1: Respondent 1

Section 1: Directions and decisions – MCS supporting strategy execution

1. A MCS is the management control (MC) tool for you as an organizational leader, to maximize assurance in achieving organizational objectives. In preparation for this interview, I have found your organizations strategic objectives (prompt card).
2. Can you please elaborate on your organizational objectives?

Section 2: Factors used to assess the functioning of the MCS

3. Can you elaborate on factors relevant on achieving organizational objectives?

4. Can you elaborate which factors you use to assess if your MCS is performing supporting organizational objectives?

5. Can you elaborate how external factors influence your organizational objectives and how your MCS performs in case organizational objectives shift or even change?

Section 3: Concluding questions and statements

6. Is there anything else you would like to add or share about this topic that you feel is important for me to know?

Section 1: Directions and decisions – MCS supporting strategy execution

1. A MCS is the management control (MC) tool for you as an manager to maximize assurance in achieving your management objectives. In preparation for this interview, I have found your organizations strategic objectives (prompt card).

2. How do you experience the MCS supporting organizational objectives?

Section 2: Factors used to assess the functioning of the MCS

3. Can you elaborate on factors relevant for achieving your management objectives?

4. Can you elaborate which factors you use to assess if your MCS is performing supporting organizational objectives?

5. Can you elaborate how external factors influence your organizational objectives and how your MCS performs in case organizational objectives shift or even change?

Section 3: Concluding questions and statements

6. Is there anything else you would like to add or share about this topic that you feel is important for me to know?