Patrick Heinemann

Power Bases and Informational Influence Strategies

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Power Bases and Informational Influence Strategies

A Behavioral Study on the Use of Management Accounting Information

With a foreword by Prof. Dr. Utz Schäffer

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Foreword

The starting point of Patrick Heinemann's dissertation thesis is the importance of management accounting information (MAI) in organizational settings. In this context, Heinemann assumes that it is not sufficient for companies to solely provide managers with access to accounting systems and the corresponding data points. It is rather the use of MAI by individual managers that he considers to be a critical factor in determining managerial performance.

Following a behavioral perspective, Heinemann distinguishes the use of MAI for learning and the use of MAI for influencing purposes. While some research findings on the use for learning exist, survey-based empirical findings on the use of MAI for influencing are scarce. Therefore, Heinemann investigates how supervisors' proposed uses of MAI for influencing affect subordinates' organizational commitment and job performance. The author hereby distinguishes the use of management accounting information for influencing ex-ante ("UEA") – i.e., for influencing other actors in the context of collective decision-making processes – and for influencing ex-post ("UEP") – i.e., for influencing other actors on the basis of finalized decision-making processes.

In the context of a large German utility firm, Heinemann shows a significant and positive effect of UEA and a significant and negative effect of influencing UEP on the organizational commitment of subordinated managers. In other words, while a more participative use of MAI by means of UEA significantly increases subordinates' commitment, a more authoritative use of MAI through UEP has the opposite effect.

While the predicted direct effects of the use of MAI on the performance of subordinated managers were not corroborated, managers' organizational commitment mediates the respective performance effects. Thus, the observed relationships between different informational influence strategies and performance seem to be more complex than what a larger part of prior publications suggests when assuming direct relationships. Heinemann explains this finding within the specific context of the investigated company. Situated in a technical environment, the enforcement of decisions already made with the help of management accounting information seems to have a negative effect on managerial commitment and – indirectly – performance.

Finally, Heinemann looks into the potential moderating influence of supervisors' power bases, selected subordinates' characteristics (job locus of control and job self-efficacy), as well as task uncertainty. Here, as well as in the other parts of his study, Heinemann provides highly interesting findings, which may serve as a stimulus for future research.

Utz Schäffer

Preface

This dissertation "Power Bases and Informational Influence Strategies – A Behavioral Study on the Use of Management Accounting Information" presents the results of the scientific research I conducted at the chair for management accounting and control at the European Business School in Oestrich-Winkel. Its completion was partly made possible through the support, cooperation, and encouragement of many individuals to whom I want to express my gratitude.

First and foremost I would like to thank my doctoral advisor and mentor Prof. Dr. Utz Schäffer who arranged for a familial atmosphere at the chair and provided thoughtful guidance and encouragement throughout the entire process. I have learned much from his critique of structure and content that will remain valuable for years to come. I also thank my second advisor Prof. Corinne Faure, Ph.D. for her helpful methodological advice.

When I found myself in the middle of this project, I discovered just how important it is to have enlightened family and friends. The support and encouragement of these individuals kept me sane enough to finish this project. Special thanks to the following persons:

- Philip Matlachowsky for his friendship and support at the chair; he has read every line of this dissertation offering much helpful advice toward content and style,
- Manuela Stoll and Clemens Pelster for many fruitful discussions, I have benefited greatly from their advice,
- Sebastian Werner for countless sanity-preserving discussions about the sense of writing a dissertation,
- All of my friends and colleagues at the chair for making that time a fun and unforgettable experience,
- All of my friends for their support and the enjoyable "distractions" during that time.

I further want to express my gratitude to my girlfriend Christina who has had to live through all of my ups and downs and has supported me throughout the entire process. My deepest gratitude, however, belongs to my parents and my grand-mother for their encouragement and unconditional support during every phase of my life. I dedicate this book to them.

Patrick Heinemann

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A Introduction

1. Motivation and Objective

"Although it may sound unorthodox somewhat, the principal purpose of accounting is to influence behavior, i.e. to provide the information and the motivation for certain actions."

Martin (1983), p. 4.

Spending a large portion of their time gathering, processing, and communicating information, managers are frequently described as information workers.[1] Their decisions and actions are based on information, which in turn has to permit statements about the consequences that the decision and action alternatives will have.[2] Thus, it seems impossible for managers to accomplish their tasks without information and corresponding information processes.

In a business environment characterized by increasing competition and a velocity of change that puts additional time pressure on decision-making and influence processes,[3] managers are challenged to provide structure and meaning to the role of each group member within their organizational team.[4] In order to achieve this, their skillful use and communication of information has gained additional importance.

Managers receive the required information from company-internal and -external sources. One of the most important internal information sources is the management accounting system, which is seen as a central resource to collect, process, and provide managers with management accounting information (MAI).[5] MAI serves as one of the managers' primary information sources and is regarded as a pervasive and powerful resource intended to support strategic decision-making and influence processes on all

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1 Cf. Wolff (2006), pp. 221f.; Schäffer/Steiners (2004), p. 377; McCall Jr./Kaplan (1985), p. 14. In contrast to this managerial view, other authors define information workers as "[…] those who are involved in the development of the new information technologies." Chernysh (2004), p. 62.

2 Cf. Tihanyi/Thomas (2005), pp. 285f.; Walsh (1995), pp. 280f.

3 Cf. Beer et al. (2005), pp. 446f. and Bunce/Fraser/Woodcock (1995), p. 254 for a detailed description of the 'new realities' in the business environment.

4 Cf. Van den Berg/Van der Velde (2005), p. 111.

5 Cf. Horngren et al. (2005), pp. 7f.

organizational levels. MAI thus provides managers "[…] with power to achieve their own ends."[6] However, in order to realize these ends, it is important that managers make good use of the MAI provided, as similar information may also be available to competitors.

Managers can either use MAI for learning, which includes the use of MAI for anticipating and making decisions, monitoring, and scanning.[7] Alternatively, managers can use MAI for influencing other actors in the organization. In these informational influence processes, they can either use MAI to assert their decisions without prior consultation of the targets of influence and expect commitment based on the formal line of command. Alternatively, managers can use MAI to influence a collective decision-making process with the targets of influence. The objective is to alter the targets' perception of the desirability of the proposed decision and increase their expected value of the outcome by being pushed in the desired direction.[8]

Several empirical studies have been conducted examining the learning facets of information use.[9] However, in a management accounting context, there is little empirical evidence on how different uses of MAI for influencing by supervising managers relate to different influence outcomes.[10] Influence outcomes are differentiated in terms of the supervisors' success, which refers to the success in influencing subordinates rather than the correctness of the decisions made by the supervisors. As influence strategies are vital to explain how supervisors can motivate subordinates' commitment and performance,[11] this research investigates how supervisors' proposed uses of MAI for influencing affect subordinates' organizational commitment and job performance.

Research Question 1: How do supervisors' uses of MAI for influencing affect subordinates' organizational commitment and job performance?

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6 Chenhall (2003), p. 129.
7 Cf. Henri (2006a), p. 533; Schäffer/Steiners (2004), pp. 385f.; Vandenbosch (1999), pp. 81f.
8 Cf. chapter B1.3.2 for a detailed deduction of these two uses of MAI for influencing; further cf. Schäffer/Steiners (2004), p. 386; Somech/Drach-Zahavy (2002), p. 168.
9 For example, cf. Henri (2006a); Steiners (2005); Bisbe/Otley (2004); Souchon et al. (2003); Vandenbosch (1999); Vandenbosch/Higgins (1996); Auster/Choo (1994).
10 Cf. chapters B1.3.2 and C2.
11 Cf. chapter B1.1 for a detailed discussion; further cf. Yukl (2006), p. 170; Fu/Yukl (2000), p. 251; Yukl (1989), p. 251; Ivancevich/Donnelly (1970), pp. 539f.

Given potential differences in the effects that the different uses of MAI for influencing have on subordinates' organizational commitment and job performance, it is important to understand the factors that likely affect the two outcomes. Supervisors' capacity to influence subordinates successfully foremost depends on their power bases and the associated control of critical resources that subordinates need in order to accomplish their tasks.[12] In other words, supervisors' power bases will likely improve or reduce the effects of different influence strategies on influence outcomes. If supervisors' power bases complement their use of influence strategies, subordinates will more likely be committed to their requests and can be expected to perform better.[13]

Social psychology studies have examined the impact of different power bases on various influence outcomes.[14] "However, the relationship among specific forms of power, specific influence behaviors, and influence outcomes is complex and not well understood."[15] Further, there is no empirical evidence on the moderating role of supervisors' power bases on the relationships between influence strategies and influence outcomes. This research, therefore, pioneers in analyzing how supervisors' power bases moderate the suggested relationships.

Research Question 2: How do supervisors' power bases moderate the suggested relationships between the uses of MAI for influencing and influence outcomes?

The outcomes of influence strategies are contingent upon the personal characteristics of the subordinates at whom the influence strategy is directed.[16] Put differently, as subordinates' personalities vary, "[…] different subordinates [will, P.H.] respond different to the same supervisory act."[17] Powerful constructs for explaining differences in the outcomes of influence strategies in organizations are subordinates' work locus of control and work self-efficacy, both of which represent enduring personal characteristics and embody distinctive facets of individuals' personalities.[18] Hence, this research

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[12] Cf. Venkatesh/Kohli/Zaltman (1995), pp. 71f.; Hirst/Baxter (1993), p. 190.
[13] Cf. Yukl (2006), pp. 170f.
[14] For example, cf. Schwarzwald/Koslowsky/Ochana-Levin (2004); Peiró/Meliá (2003); Lam (1996).
[15] Yukl (2006), p. 169.
[16] Cf. Venkatesh/Kohli/Zaltman (1995), p. 74.
[17] Likert (1961), p. 91; further cf. Kelly (1955), pp. 74f.
[18] Cf. chapter B1.1.3 for a detailed analysis.

analyzes how subordinates' work locus of control and work self-efficacy moderate the relationships between informational influence strategies and influence outcomes.

Research Question 3: How do subordinates' work locus of control and work self-efficacy moderate the suggested relationships between the uses of MAI for influencing and influence outcomes?

Finally, the outcomes of the suggested uses of MAI for influencing are likely contingent upon the difficulty of the tasks. While for simple and routine tasks, it may suffice to assert a decision previously made, for other, more complex tasks, it may be necessary to involve subordinates in the decision-making process and participatively exchange MAI.[19] The present research will thus further include task difficulty as proposed moderating variable.

Research Question 4: How does task difficulty moderate the proposed relationships between the uses of MAI for influencing and influence outcomes?

To summarize, this research investigates how (1) supervisors' uses of MAI for influencing affect subordinates' commitment and performance and how (2) supervisors' power bases, (3) subordinates' characteristics, and (4) task difficulty moderate these relationships. Structural equation modeling (SEM) employing a Partial Least Squares (PLS) approach is used to test the proposed causal relationships. Subsequent interviews complement the analysis and help to substantiate questionnaire findings. The causal frame of reference and the research questions (RQ) are depicted in Figure 1.

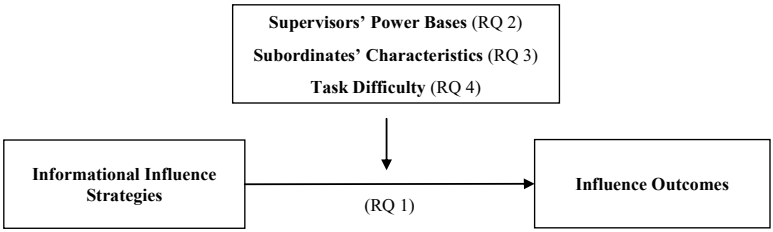

Figure 1: Causal Frame of Reference[20]

[19] Cf. Lau/Buckland (2000), p. 49.
[20] Own compilation.

2. Course of Analysis

This study follows a three-stage research process. The theoretical development (Part 1) contains a review of the literature on social influence and power and a deduction of two uses of MAI for influencing. Furthermore, propositions about the theoretical relationships are advanced. The empirical research (Part 2) includes the methodological conception of the study and the empirical results. Lastly, the discussion and conclusion (Part 3) contain limitations of the study, future research suggestions, and practical implications. The research process is depicted in Figure 2.

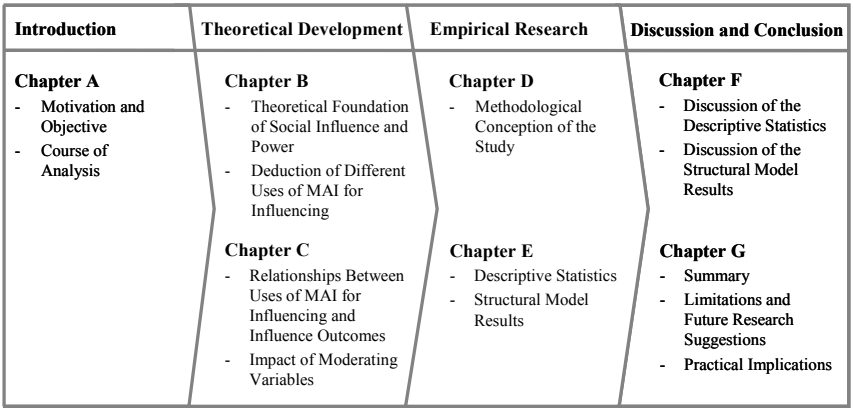

Figure 2: Research Process[21]

"To understand what makes managers effective requires an analysis of the complex web of power relationships and influence processes found in all organizations."[22] For that reason, chapter B analyzes social influence processes in organizations from a social psychology perspective. As supervisors' skillful use and communication of information is a prerequisite for successfully accomplishing their tasks, special focus is placed on the relevance of informational influence strategies in downward influence exercised by supervisors. At this conjuncture, research on the use of information is employed to extend social psychology research on informational influence strategies and to derive two ways in which supervisors can use MAI to influence their subordi-

[21] Own compilation.
[22] Yukl (2006), p. 145.

nates. As the outcomes of these informational influence strategies strongly depend on the power bases of the supervisors, power theories will subsequently be reviewed and a theory will be selected for complementing the analysis of informational influence strategies based on MAI.

As mentioned before, "[…] the relationship among specific forms of power, specific influence behaviors, and influence outcomes is complex and not well understood."[23] Accordingly, given the absence of theoretically well-established relationships, chapter C advances tentative propositions about the patterns of relationships between the two informational influence strategies and their effect on influence outcomes. Further, propositions are developed about how various moderating variables including the supervisors' power bases, subordinates' characteristics, and task difficulty, will moderate the proposed relationships between informational influence strategies and influence outcomes. This integration of various moderating variables provides a deeper understanding of how and when informational influence strategies based on MAI lead to the desired outcomes.

Following the theoretical research model and the propositions developed in chapters B and C, chapter D starts with a deduction of an appropriate research strategy, which includes the assumptions about knowledge claims, the strategies of inquiry, as well as the methods for data collection, analysis, and interpretation. Based on the foregoing description of the operationalization of the research model, the data collection process, as well as the final sample characteristics, a concrete method for analysis will be selected, and the respective evaluation criteria will be presented for later evaluating the theoretical propositions.

Chapter E presents the results of the study. It commences with a descriptive analysis of the types of MAI used by supervisors and the respective purposes for which they are used to influence subordinates. Subsequently, the theoretical propositions advanced in chapter C are statistically tested. Chapter F discusses the empirical results.

Chapter G summarizes the results and discusses the limitations of the study. Additionally, future research ideas and practical implications are presented.

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[23] Yukl (2006), p. 169.

B Social Influence and Power

1. Influence Strategies as a Means to Exercise Power

1.1 Social Influence and Influence Strategies

1.1.1 The Role of Social Influence in Organizations

Social psychology literature defines social influence[24] as the force one person (the agent) exerts on someone else (the target) to induce a change in the behaviors, attitudes, goals, and values of the target.[25] Accordingly, influence occurs at the individual level of analysis between at least two individual actors in a social relationship.[26] In an organizational context, influence can be interpreted as a facet of leadership behavior that aims to coordinate subordinates' actions in order to attain common organizational objectives.[27]

Guided by this common purpose, supervisors are concerned about simultaneously advancing their subordinates' knowledge base and suggesting that tasks are manageable. On the one hand, they can provide subordinates with the information needed to work on interdependent tasks, thereby initiating targeted-learning processes and corresponding adjustments of the targets' actions.[28] On the other hand, assuming that subordinates cannot access the required information on their own, supervisors can use the informa-

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[24] The term social influence implies that influence attempts only occur in social relationships, analogous to the discussion about social power as a relational phenomenon in chapter B2.2.1. In this dissertation, the terms social influence and influence are used synonymously.

[25] Cf. French Jr./Raven (1959), p. 151. In this dissertation, the words agent(s) and supervisor(s) as well as target(s) and subordinate(s) are used synonymously.

[26] One could also think of a scenario in which agents influence themselves. For instance, they might influence themselves and go jogging although it is raining. However, self-influence is not analyzed within the scope of this research.

[27] It is assumed that the agents' decisions match with those of the organization.

[28] Cf. Purdy/Gago (2003), pp. 668-670.

tion as a motivator and indicate that supposedly complex tasks are controllable.[29] Thus, supervisors' skillful use of information in influence processes has gained additional importance to give meaning to subordinates' work.

1.1.2 Means to Exercise Influence in Organizations

Different expressions exist for influence attempts. Some researchers refer to influence behavior[30], others to influence tactics[31], or influence strategies[32]. Conceptually, these terms describe the same matter as they refer to the different means through which power can be exercised.[33] However, while power is rooted in attributions or inferences, influence strategies involve observable behavior of the agents.[34] In view of that, CARTWRIGHT (1965) views influence strategies as the "[…] methods by which influence may be accomplished"[35] and DAHL (1957) defines them as "[…] a mediating activity by A between A's base and B's response."[36]

Following these definitions, this research defines influence strategies on the individual level as observable strategic maneuvers of the influencing agents (in this case supervisors) aiming to initiate directed adjustments of the targets' (in this case subordinates') knowledge, attitude, or overt behavior.

1.1.3 Outcomes of Influence Strategies

When analyzing influence strategies, an important distinction has to be made between the outcomes on part of the targets and the objectives reported by the agents, because the latter may not always be able to achieve the intended effects.[37] The success of in-

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[29] Supervisors will oftentimes need to monitor their subordinates in order to ensure a successful influence attempt. However, monitoring actions will not be analyzed within the scope of this research. Cf. Schäffer (2001), pp. 49f.
[30] Cf. Yukl (2006), p. 164.
[31] Cf. Bruins (1999), p. 7; Mallalieu/Faure (1998), p. 408.
[32] Cf. Boyle et al. (1992), p. 462; Frazier/Rody (1991), p. 52.
[33] Cf. Yukl/Falbe (1990), p. 132; Frazier/Summers (1984), p. 44.
[34] Cf. Hinkin/Schriesheim (1990), p. 222.
[35] Cartwright (1965), p. 11.
[36] Dahl (1957), p. 203.
[37] Cf. Yukl (2006), p. 147.

fluence strategies, therefore, refers to success in influencing the targets rather than the correctness of the decisions made by the agents.[38]

With regard to the outcomes, social psychology research suggests that influence strategies result in the targets' commitment, compliance, or resistance.[39] Compliance and resistance are two important influence outcomes with compliance referring to the targets' willingness to comply with the agents' requests in a rather apathetic sense and with resistance referring to the targets' opposition to the request. Commitment, as opposed to the latter two influence outcomes, does not only reflect the unemotional matter of complying or not complying, but refers to the conscious attachment of the targets to the influence requests. As a result, when being committed, the targets internally agree with the desired requests, are enthusiastic about the decisions, and undertake unusual effort to achieve the best possible results.[40] As mentioned earlier, the present research defines influence strategies as observable strategic maneuvers of the influencing agents aiming to initiate directed adjustments of the targets' knowledge, attitude, or overt behavior.[41] Consequently, it is not just that the targets comply with a request and complete a task, but it is the evoked change in the targets themselves that determines the success of the influence strategy. By focusing on this attitudinal or emotional aspect of influence strategies, which enables the agents to influence the targets lastingly and not only task-specifically, commitment will be the influence outcome researched in this dissertation.

Research on commitment has accentuated the value of differentiating among multiple foci of employee commitment in the organization.[42] These foci characterize individuals, groups, or entities to which an employee is attached. Commitment to these entities can thus be defined as individuals' attachment portrayed by their identification to and involvement with the target entity.[43] While this research recognizes that different foci of employee commitment exist, it argues that individuals develop their general percep-

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[38] Cf. Falbe/Yukl (1992), p. 639.
[39] Cf. Yukl (2006), p. 147.
[40] Cf. Yukl (2006), p. 147.
[41] Cf. chapter B1.1.1.
[42] Cf. Vandenberghe/Bentein/Stinglhamber (2004), p. 48 and p. 64; Stinglhamber/Bentein/Vandenberghe (2002), p. 124; Meyer/Herscovitch (2001), p. 300; Clugston/Howell/Dorfman (2000), p. 6; Becker/Billings (1993), p. 188; Becker (1992), p. 232.
[43] Cf. Vandenberghe/Bentein/Stinglhamber (2004), p. 48; Becker et al. (1996), p. 465.

tions about the attitudes of the organization towards them through guidelines and practices endorsed by their direct supervisors. This postulate follows the arguments of BLAU's (1964)[44] social exchange theory and the norm of reciprocity proposed by GOULDNER (1960)[45]. Based on their supervisors' actions, subordinates attribute human-like characteristics to their employers and develop a relationship with the organization that is parallel to the relationships with their direct supervisors.[46] In other words, while employees reflect their perceptions of their supervisors' actions in their own attitudes and behavior towards the organization, the distinction between organizational and supervisor commitment is floating. Assuming that there is a congruency of the organizations' and the supervisors' goals, supervisors' influence strategies can be considered as aiming to adjust subordinates' actions towards achieving organizational goals. Accordingly, the present analysis will build on subordinates' organizational commitment, which describes their identification with organizational goals and their willingness to exert extra effort on behalf of the organization.[47]

Moreover, organizational commitment can be based on three different aspects, normative, continuance, and affective commitment.[48] Normative commitment arises through a feeling of employees being obliged to reimburse the organization. Continuance commitment results from benefits taken into consideration by the subordinates and is built through investments in material, social, or cultural capital inside the organization.

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[44] Blau (1964) proposes that social or economic standards can be used to explain any exchange relationship. He argues that exchanges with a social character are based on trust and the mutual perception that benevolent acts are reciprocated some time in the future. Cf. Blau (1964), pp. 88f.
Management theory has later employed Blau's (1960) ideas to explain exchange relationships between the organization and its employees as well as between supervisors and subordinates. For example, Eisenberger et al. (1986) argue that employees would develop a general belief on how the organization values their work and support, which in turn generates an obligation on part of the employees to reimburse the organization. In other words, their "[…] findings support the social exchange view that employees' commitment to the organization is strongly influenced by their perception of the organization's commitment to them." Eisenberger et al. (1986), p. 500. Further empirical evidence supporting this argumentation is provided by Shore et al. (2006), p. 849 and Shore/Wayne (1993), p. 776.

[45] Gouldner (1960) argues that members of all social systems follow a norm of reciprocity that makes two minimal demands: (1) All people should return the support that they have received, and (2) they should not harm the people who have supported them. Cf. Gouldner (1960), p. 171.

[46] Cf. Levinson (1965), pp. 386f.

[47] Cf. Chen/Francesco (2003), p. 491; Mowday/Porter/Steers (1982), p. 27. In this dissertation, the terms subordinates' organizational commitment and subordinates' commitment are used synonymously.

[48] Cf. Lee/Allen/Meyer (2001), p. 597; Meyer/Allen (1991), p. 67; Allen/Meyer (1990), p. 1.

Affective commitment is created through a feeling of relatedness and solidarity with the organization, i.e., when subordinates identify themselves with corporate goals or personal contacts inside the organization.[49] As affective commitment is based on a voluntary decision of the subordinates, this type of commitment describes the strongest bonding force between employees and organizations.[50] Consequently, creating affective commitment of the subordinates to the organization and its goals should be central to the management of employees and be ultimately taken into consideration when deciding on different influence strategies. Hence, affective organizational commitment is the basis of further analysis of influence outcomes that will be analyzed empirically in chapter E2 of this research.[51]

With regard to the objectives of influence strategies, researchers in the field of social psychology have asked the influencing agents to indicate their objectives when influencing other actors in the organization. The empirical data suggest that besides assigning or initiating a change in work, improving subordinates' performance is the most often-cited downward influence objective reported by supervisors.[52] These results lend support to research on the nature of managerial work, which argues that success in influencing others is one of the most important determinants of managerial performance.[53] Especially when supervisors exchange important resources such as information, they initiate targeted-learning processes on part of the subordinates and aim to increase their performance, which in turn ultimately reflects on their own achievement: "Management involves the accomplishment of some objective through the efforts of other people."[54] Hence, the outcomes of influence strategies should secondly be related to subordinates' job performance in addition to their affective organizational commitment.[55]

Defining subordinates' job or managerial performance involves the problem of determining the construct's relevant dimensions of analysis, which can take various forms

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[49] Cf. Klimecki/Gmür (2005), pp. 333f.; Meyer et al. (2002), p. 21.
[50] Cf. Klimecki/Gmür (2005), pp. 338f.
[51] In this dissertation, the term subordinates' commitment is used instead of subordinates' affective organizational commitment.
[52] Cf. Yukl/Falbe (1990), pp. 136f.; Kipnis/Schmidt/Wilkinson (1980), p. 441.
[53] Cf. Yukl/Tracey (1992), p. 525.
[54] Mahoney/Jerdee/Carroll (1963), p. 54.
[55] In this dissertation, the terms subordinates' job performance and subordinates' performance are used synonymously.

in different situations. According to CHRISTEN/IYER/SOBERMAN (2006), job performance can broadly be defined as "[…] an aggregate construct of effort, skill, and outcomes that are important to the employee and outcomes that are important to the firm."[56] However, effort should rather be considered an input variable than an output to work.[57]

Thus, this research broadly defines subordinates' performance as being "[…] the outcome of an individual manager's effort; it takes different forms under different circumstances and for different purposes."[58] It can be expressed as the subordinates' relative effectiveness on the job.[59] In cases of manual or lower management labor that is characterized by routine work, the construct may be measured objectively, for example, as the number of units produced. However, in cases of high-level managers, whose work tends to be more complex and non-routine, performance can better be assessed using a subjective measurement. As this research aims to analyze downward influence among supervisors, a subjective measure seems most appropriate.[60]

1.1.4 Factors Affecting the Outcomes of Influence Strategies

The outcomes of influence strategies are largely affected by the characteristics of the agents (in this case supervisors) and the targets (in this case subordinates) as well as the difficulty of the respective task.[61] Consequently, these three moderating factors will be assessed in-depth in the following section.

Characteristics of the Supervisors

According to VENKATESH/KOHLI/ZALTMAN (2005), the most important characteristics affecting the outcomes of influence strategies are the supervisors' power bases.[62] In other words, supervisors' power bases largely determine their capacity to influence

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[56] Christen/Iyer/Soberman (2006), p. 139. This definition follows previous research in the field. Cf. Behrman/Perreault Jr. (1984), p. 13; Brown/Lusch/Muehling (1983), p. 90.
[57] Cf. Christen/Iyer/Soberman (2006), p. 139.
[58] Winata/Mia (2005), p. 29.
[59] Cf. Meyer et al. (1989), p. 153.
[60] Cf. chapter D2.1 for the operationalization of job performance.
[61] Cf. Somech/Drach-Zahavy (2002), pp. 168f.; Yukl/Kim/Chavez (1999), p. 137.
[62] Cf. Venkatesh/Kohli/Zaltman (1995), p. 74.

subordinates successfully.[63] If their power bases complement their choice of influence strategies, subordinates will be more willing to fulfill their requests, be more committed to their goals, and ultimately perform better.[64]

The aforementioned thoughts imply that the power bases of the supervisors are of great importance to influence strategies. Their power bases can affect the influence process in three different ways. They can affect (1) the choice of influence strategies, (2) the influence outcomes, or they can (3) moderate the impact of influence strategies on the resulting outcomes as illustrated in Figure 3.

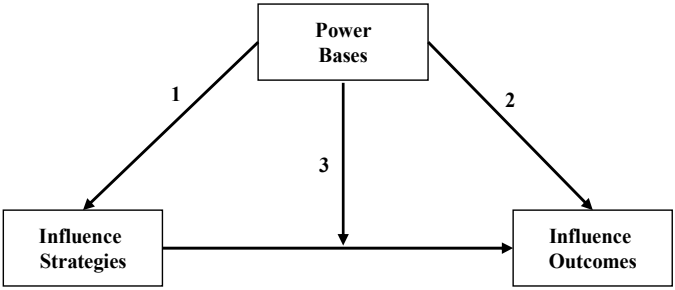

Figure 3: Effects of Power Bases on Influence Strategies and Influence Outcomes[65]

Some studies in social psychology have been conducted examining the impact of different power bases on various influence outcomes.[66] However, until today, there is only little insight into the relationships between certain power bases, specific influence strategies, and the resulting influence outcomes. The moderating role of supervisors' power bases on the linkage between influence strategies and influence outcomes has not been assessed empirically in detail until today. Consequently, this research focuses on the moderating effect of supervisors' power bases as one major characteristic of the supervisors affecting the influence outcomes.

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[63] Cf. Venkatesh/Kohli/Zaltman (1995), pp. 71f.; Palich/Hom (1992), p. 280.
[64] Cf. Yukl (2006), pp. 170f.
[65] Own compilation following Yukl (2006), p. 170.
[66] Empirical studies examining the direct outcomes of supervisors' power bases have, for example, been conducted by Schwarzwald/Koslowsky/Ochana-Levin (2004) and Peiró/Meliá (2003). Empirical studies on the direct outcomes of influence strategies have, for example, been conducted by Yukl/Guinan/Sottolano (1995) and Yukl/Tracey (1992).

Characteristics of the Subordinates

Because their personalities vary, subordinates are expected to react differently to the influence strategies used by their supervisors. Hence, those personal factors or characteristics inherent in the subordinates that affect the outcomes of informational influence strategies have to be assessed.[67] Subordinates' work locus of control and work self-efficacy are two powerful constructs for explaining differences in the outcomes of influence strategies in organizations. Both constructs represent enduring personal characteristics and embody distinctive facets of the subordinates' internal properties.[68] Consequently, work locus of control and work self-efficacy are addressed in detail in the following paragraphs, as they are proposed to moderate the relationships between influence strategies and influence outcomes.

The internal-external work locus of control "[…] refers to a relatively stable set of beliefs, held by an individual, about the likely causal relationships between their actions, and those of others, and the outcomes of events and situations."[69] While those subordinates with an internal locus of control believe what happens to them is primarily under their own control, those with an external locus of control feel that their destinies are subject to chance, luck, or fate.[70] In other words, subordinates with an internal locus of control have a propensity to obtain and exert personal control and perform better in participatory situations. They see situations as manageable and have an inclination to take productive actions to resolve problems in the workplace.[71] Several empirical studies in the fields of psychology and management accounting have examined the moderating role of locus of control in different research settings and have revealed significant attitudinal differences between internals and externals that are presented in detail in chapter C2.3.

Individuals' self-efficacy is an important motivational construct that describes individuals' beliefs in their own competences to cope with a broad range of challenging demands. According to social cognitive theory, self-efficacy is a regulatory mechanism that occupies a central role for the attainment of individuals' motivation and per-

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67 Cf. Likert (1961), p. 91; Kelly (1955), pp. 74f.
68 Cf. Walker (2001), p. 42; Elangovan/Xie (1999), p. 360.
69 Walker (2001), p. 42.
70 Cf. Mitchell/Smyser/Weed (1975), pp. 623-625.
71 Cf. Kren (1992), p. 993.

formance. Self-efficacy is usually understood as being either task-specific or domain-specific. To understand the impact of informational influence strategies in organizations, subordinates' work self-efficacy as domain-specific construct is chosen, as it describes individuals' beliefs in their ability to perform well in their jobs.[72] Highly self-efficacious subordinates believe in their ability to cope with ambiguous and challenging situations and will react differently to supervisors' influence strategies from low self-efficacious managers, who do not believe in their capabilities to exercise control over challenging demands.

Characteristics of the Tasks

Next to supervisors' power bases and subordinates' characteristics, the difficulty of the tasks may affect the outcomes of influence strategies.[73] Task difficulty describes "[…] the extent to which employees perceive their tasks as analyzable and the methods of implementing their tasks as predictable."[74] An increase of task difficulty adds to the overall job complexity, increasing the need for additional information and the propensity for communication. In other words, "[c]omplex tasks provide an opportunity and need for a superior to transmit knowledge to a subordinate."[75] Consequently, task difficulty also affects the relationships between influence strategies and the resulting influence outcomes.[76]

The various possible influence strategies that can be applied by supervisors must be analyzed first by examining the relationships between the influence strategies chosen by supervisors and the resulting influence outcomes on the part of the subordinates that are moderated by supervisors' and subordinates' characteristics as well as task difficulty. A variety of categorizations of influence strategies has been proposed in the fields of organizational and social psychology.[77] In the following chapter, these categorizations will be reviewed with a focus on the occurrence and potential relevance of informational influence strategies.

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[72] Cf. Bozeman et al. (2001), p. 489.
[73] For example, cf. Lau/Buckland (2000), p. 49; Murray (1990), p. 117.
[74] Mia (1987), p. 548.
[75] Murray (1990), p. 118.
[76] Cf. March/Simon (1993), p. 74.
[77] For a review cf. Payan/Nevin (2006), pp. 458-460; Neuberger (1995), pp. 107-167; Engelhart (1994a), pp. 7-21; Engelhart (1994b), pp. 159-168.

1.2 Occurrence and Relevance of Informational Influence Strategies

In the fields of organizational and social psychology, two types of categorizations evolved from intraorganizational research on influence strategies. The first approach examines influence strategies through the process of induction by generating influence strategies through respondents for particular, previously defined situations. The empirical observations are then statistically analyzed for patterns and/or generalizations, which are the basis for a new influence category.[78] The second approach focuses on deductively deriving influence strategies from existing theories of social power and influence.[79]

1.2.1 Inductively Developed Categorizations of Influence Strategies

KIPNIS/SCHMIDT/WILKINSON (1980) present one of the first studies that empirically inducts the types of intraorganizational influence strategies.[80] The authors asked 165 graduate students to describe an incident in which they succeeded in getting their way with their boss, co-workers, and subordinates, and to answer a structured questionnaire to measure categories of influence behavior in organizations. From the incident essays, 370 influence strategies are reported. The resulting 58 questionnaire items yield eight influence strategies via factor analysis.[81] Of these, only exchange of benefits and rationality are related to the use of information.[82] Exchange of benefits describes the use of positive benefits such as the offering of an exchange or personal sacrifices. The forwarding of information may serve as an important exchange asset, especially when the targets of influence need it to accomplish their tasks. Rationality includes the writ-

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[78] Cf. Yukl/Falbe (1990); Kipnis/Schmidt/Wilkinson (1980).

[79] Cf. Venkatesh/Kohli/Zaltman (1995); Frazier/Summers (1984).

[80] Cf. Kipnis/Schmidt/Wilkinson (1980). Most prior studies had focused on influence strategies used in interpersonal relationships. Cf. Falbo/Peplau (1980); Falbo (1977). Up to that time, only the Ohio-State Navy leadership studies by Fleishman (1973) had focused on influence strategies in organizational settings. The author reports two dimensions of influence behavior, namely consideration and initiating structure. Cf. Fleishman (1973).

[81] Cf. Kipnis/Schmidt/Wilkinson (1980), pp. 441-443.

[82] The authors report six other influence strategies: Assertiveness includes the use of demands, orders, and deadlines. Ingratiation is a strategy by which the agents make the targets feel important and act humble. Sanctions refer to using threats or sanctions to reach compliance. Adding pressure for conformity on the targets by invoking the help of higher levels in the organization is labeled upward appeal. Blocking is used towards supervisors by threatening to or actually stopping work. Finally, coalitions are built in order to put "[…] steady pressure for compliance by obtaining the support of co-workers and subordinates." Kipnis/Schmidt/Wilkinson (1980), p. 447.

ing of a comprehensive plan or the exchange of arguments and logic to explain the rational behind a decision.

Based on their empirical findings, KIPNIS/SCHMIDT/WILKINSON (1980) reason that individuals employ different influence strategies depending on the objectives and the direction of influence. Their empirical results specifically suggest that "[…] as the status of the target person increased, respondents placed more reliance on rationality tactics."[83] Rationality tactics are most frequently employed with the objective to increase the targets' performance.[84] Although it can be concluded that rationality tactics are of great importance for influence in high-level management, the authors neither specify the types of information used, nor present the concrete modes in which information can be used to affect a change in the target. Additionally, the study has strong limitations as its results are based on answers by MBA students and not managers working in an organization. Therefore, it is questionable whether the findings can be transferred to business settings. Moreover, the authors examine self-perceptions of influence tactics and objectives that potentially lead to systematic self-report biases.[85]

Based on the above critique, YUKL/FALBE (1990) refine and extend the typology of KIPNIS/SCHMIDT/WILKINSON (1980) to eleven proactive influence strategies used in managerial settings.[86] The authors initially replicate the study of KIPNIS/SCHMIDT/WILKINSON (1980) in a sample of 197 evening MBA students, who worked at regular jobs during the day, and managers, who attended management development courses. The second sample consists of 237 evening students and managers in management development courses, who were asked to answer similar questions, but from the targets' perspective.[87] Most of their influence strategies resemble the ones identified by KIPNIS/SCHMIDT/WILKINSON (1980).[88] For informational influence strategies, how-

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[83] Kipnis/Schmidt/Wilkinson (1980), p. 448.

[84] Cf. Kipnis/Schmidt/Wilkinson (1980), p. 450.

[85] Cf. Podsakoff et al. (2003) and Podsakoff/Organ (1986) on the problems resulting from self-report biases.

[86] The studies of Yukl/Falbe (1990) and Kipnis et al. (1980) have proved to be the empirical basis for 'future' studies on influence behavior. Cf. Yukl (2006); Yukl/Kim/Chavez (1999); Yukl/Tracey (1992), Erez/Rim (1982); Schilit/Locke (1982).

[87] Cf. Yukl/Falbe (1990), p. 137.

[88] The authors do not include sanctions and blocking arguing that they are mere reactions on past events and cannot be classified as proactive influence strategies. Instead, the authors incorporate inspirational appeals, i.e., appeals to a sense of justice, loyalty, and effort to invoke enthusiasm and confidence among the targets. Cf. Yukl/Falbe (1990), pp. 132f.

ever, the authors include consultation tactics, where subordinates participate in the decision-making process and in the discussion about carrying out the tasks.[89] Further, exchange tactics in YUKL/FALBE's (1990) study involve some implicit or explicit offers that the supervisors make in order to reach the targets' commitment. The authors argue that this influence strategy is ideally suited for the control of resources that the targets do not have access to, especially when the targets need them to accomplish their tasks.[90] In contrast, KIPNIS/SCHMIDT/WILKINSON (1980) report that exchange of benefits is only directed upwards, i.e., from subordinates to supervisors. YUKL/FALBE (1990) conclude that "[t]he overall pattern of results suggests that the Kipnis et al. conclusions for influence tactics are considerably overstated. The big story is not directional differences but rather the discovery that some tactics are used more than others, regardless of whether the target is a subordinate, peer, or superior."[91] In downward influence strategies, being the focus of the present research, consultation and rational persuasion are most frequently employed according to YUKL/FALBE (1990). Again, the types of information that can be employed to exercise influence are not specified.

The reviewed inductively developed categorizations have in common that the reported influence strategies are not directly attributable to a single power base of the influencing agents.[92] Although power base theories are presented in detail in chapter B2.2.2, there will be a brief explanation of the aforementioned shortcomings. For instance, assertiveness can be based on legitimate power (A insists that B follows the organizational line of command), coercive power (A sets a time limit for B, which has negative consequences for B in the case she does not fulfill the job), or reward power (A hassles B and implicitly announces that she will quit when B does not confirm to her requests). The authors are aware of this difficulty: "It is clear that the many influence tactics described here do not easily fit into any single classification scheme currently found in the literature on power usage."[93] This lack of integration between power bases and influence strategies was the starting point for the second group of research on influence strategies that deductively develops categorizations of influence strategies.

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[89] Cf. Yukl/Falbe (1990), pp. 132f.
[90] Cf. Yukl/Falbe (1990), p. 135.
[91] Yukl/Falbe (1990), p. 139.
[92] Cf. chapter B2 for a definition and discussion of social power and power bases.
[93] Kipnis/Schmidt/Wilkinson (1980), p. 443.

1.2.2 Deductively Developed Categorizations of Influence Strategies

FRAZIER/SUMMERS (1984) develop a framework featuring two categories of influence behavior that include six possible influence strategies.[94] Focusing on those influence strategies relevant to the research question, only the ones making use of information are considered below.

The first of the two broad categories describes influence strategies trying to alter "[…] the target's perception regarding the intended behavior."[95] It includes the strategies of information exchange, where the agents use "[…] discussion on general business issues and operating procedures"[96] to convince the targets of the proposed ideas, and recommendations, where the agents suggest specific kinds of actions that the targets should follow.[97] The use of the latter influence strategy may include the use of information by the agents to explain the rational for a decision.

The second category of influence behavior describes influence strategies that are independent of the targets' perceptions of the desirability of the intended action and do generally not include the use of information to gain the targets' commitment. Only the strategy of requests, where "[…] the source merely informs the target of the action(s) it would like the target to take without mentioning or directly implying any specific consequences of the target's subsequent compliance or noncompliance […]"[98] can be accompanied by a passing on of necessary information for executing the tasks. Similar to the empirical results of KIPNIS/SCHMIDT/WILKINSON (1980) and YUKL/FALBE (1990), information exchange is found to be the most frequently employed downward influence strategy, followed by requests and recommendations.[99]

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[94] Cf. Frazier/Summers (1984). The proposed influence strategies can be related directly to power base theory. The information exchange strategy is based on information power, recommendations on expert power, promises and threats on reward and coercive power, legalistic strategies on legitimate power, and requests on referent power. For a discussion of power bases cf. chapter B2.

[95] Frazier/Summers (1984), p. 45.

[96] Frazier/Summers (1984), p. 45.

[97] Cf. Frazier/Summers (1984), p. 45.

[98] Frazier/Summers (1984), p. 47. The second category further includes promises and threats, where the agents pledge to provide the targets with some kind of reward or sanction if they comply with the agents' desires, and legalistic strategies that are based on formal legal contracts or binding agreements.

[99] Cf. Frazier/Summers (1984), p. 50.

VENKATESH/KOHLI/ZALTMAN (1995) refine and further develop FRAZIER/SUMMERS' (1984) classification. The authors argue that the six proposed influence strategies can be categorized according to their coercive intensity, task orientation, and instrumentality.[100] Coercive intensity denotes the extent to which the targets feel that their non-compliance will lead to undesirable consequences. Because the focus of this research is placed on informational influence, the relevant strategies described above, i.e., requests, information exchange, and recommendation strategies, are categorized as non-coercive.[101] Task-orientation describes "[…] the extent to which the strategy focuses on the impact of the target's compliance on the task at hand."[102] Information exchange and recommendations are highly task-oriented, i.e., the targets perform better if they are committed to the agents' objectives for a specific task.[103] In contrast, requests are low in task-orientation, as they do not usually provide the targets with explanations about the rationality of the proposed action.[104] Finally, instrumentality refers to the degree to which influence strategies can be complemented by the agents' ability to bestow rewards or threats. The authors argue that requests, information exchange, and recommendation strategies are not integrally affected by rewards and threats.[105] The empirical analysis confirms that recommendation, information exchange, and request strategies, all non-coercive in nature, are most frequently employed, because they "[…] are, perhaps, less unprofessional, insulting, or likely to provoke retaliation and, hence, are used more frequently."[106]

Summarizing the reviewed typologies, those influence strategies involving the use of information and/or objective arguments are most frequently employed and take a dominant role in managerial settings because they are regarded as being more professional than those influence strategies that are based on formal authority and/or coer-

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[100] Cf. Venkatesh/Kohli/Zaltman (1995), p. 72.
[101] Cf. Venkatesh/Kohli/Zaltman (1995), p. 72. The other influence strategies involving threats and legalistic pleas are categorized as hard coercive strategies, whereas promises are categorized as soft coercive strategy.
[102] Venkatesh/Kohli/Zaltman (1995), p. 73.
[103] Similarly, legalistic pleas are categorized as highly task-oriented. Cf. Venkatesh/Kohli/Zaltman (1995), p. 73.
[104] Cf. Venkatesh/Kohli/Zaltman (1995), p. 73.
[105] In contrast, influence strategies involving promises and threats are affected by the agents' ability to bestow them. Cf. Venkatesh/Kohli/Zaltman (1995), pp. 72f.
[106] Venkatesh/Kohli/Zaltman (1995), pp. 77f.

cion.[107] However, the categorizations neither specify the types of information used for exercising influence, nor do the respective authors discuss different modes in which the agents can use that information to influence the targets. At this juncture, research on the use of information can be used to develop the above literature further.

1.3 Influencing with Management Accounting Information

Since the 1970s, a variety of studies has been conducted to understand how decision-makers use information. The first of them focused on public policy making. These studies elicited further field research in the private sector aiming to improve managers' use of information.[108] ANSARI/EUSKE (1987) remark that "[…] there is no single theory of information use in organizations from which hypotheses can be derived and empirically tested. The only feasible option is to group the main roles into a small number of finite categories."[109] Accordingly, in the process, different classifications of information use were derived.[110] Most of these classifications include facets dealing with influencing other actors in the organization, for example, the use of information for legitimizing decisions taken on different grounds, manipulating information to succeed in getting one's way, or using information for the pursuit of power and influence.[111] Differences in the definitions result from different derivations of the typologies. While some authors inductively developed them through exploratory interviews, others deductively developed frameworks based on literature reviews.[112] In the following, typologies of information use are reviewed with a focus on only those categories that relate to influencing other actors in the organization.

In chapter 1.3.2, the different types of information use for influencing will be briefly reviewed in order to deduct two distinct modes with which supervisors can use MAI to influence subordinates. The focus is placed on formal MAI, as it is one of the main

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[107] Cf. Somech/Drach-Zahavy (2002), p. 168.
[108] Cf. Weiss (1979); Pelz (1978); Knorr (1977).
[109] Ansari/Euske (1987), p. 551. Hirst/Baxter (1993) further remark: "This section outlines the analytical frameworks used in the case to typify [...] the role of information. It is, however, important to recognize that these frameworks are tentative, being derived from developing literatures." Hirst/Baxter (1993), p. 188 (italics added).
[110] For a review, cf. Schäffer/Steiners (2004) and Menon/Varadarajan (1992).
[111] Cf. the socio-political use by Ansari/Euske (1987), the strategic use by Feldman/March (1981), and the symbolic use by Pelz (1978).
[112] For example, cf. Hirst/Baxter (1993); Menon/Varadarajan (1992); Pelz (1978).

informational sources for decision-making and influence processes in all organizations,[113] and as its use for influencing "[…] highlights the relatively active role that accounting information plays in shaping beliefs."[114]

1.3.1 Management Accounting Systems as Information Provider

Managers receive information from company-internal and -external sources. One of the most frequently cited internal information sources are formal management accounting systems, which are used to collect, process, and provide information to managers.[115]

In the 'past', management accounting systems and the corresponding MAI were seen as "[…] passive inputs to choice […]"[116], focusing on formal, company-internal financial information with an ex-post or historical character. With the past being used as a reference point, traditional management accounting systems have been criticized for lacking contemporary, decision-relevant information, which would allow managers to make and communicate decisions proactively.[117]

Because of an increase in information requirements, 'modern' management accounting systems embrace a much broader scope of information: "More recently however, studies have shown how accounting information actively shapes both the choice process […] and the beliefs of choice participants […]."[118] They furnish managers with the power to carry out leadership actions as well as to effectively and efficiently make and control decisions.[119] Following HORNGREN ET AL. (2005), WILSON/CHUA (1993), and others, this research defines management accounting systems as 'active' resources to

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[113] Cf. Atkinson/Kaplan/Young (2004), pp. 3f.
[114] Hirst/Baxter (1993), p. 204.
[115] "The terms management accounting (MA), management accounting systems (MAS), management control systems (MCS) and organizational control (OC) are sometimes used interchangeably. MA refers to a collection of practices such as budgeting or product costing, while MAS refers to the systematic use of MA to achieve some purpose. MCS is a broader term that encompasses MAS and also includes other controls such as personal or plan controls." Chenhall (2003), p. 129.
[116] Hirst/Baxter (1993), p. 204.
[117] Cf. Mendoza/Bescos (2001), p. 259.
[118] Hirst/Baxter (1993), p. 204.
[119] Cf. Chenhall (2003), p. 129. This view of management accounting systems is based on a sociological perspective. In contrast, contingency-based research follows a more conventional view that perceives management accounting systems as a passive tool to assist managers' decision-making. Cf. Chenhall (2003), p. 129.

collect, process, and provide MAI to managers to assist them "[…] in fulfilling the goals of the organisation"[120], and to furnish them "[…] with power to achieve their own ends."[121] They include future-oriented, financial, and non-financial information as well as company-external information about markets, customers, and competitors.[122] The resulting MAI is regarded as a pervasive and powerful resource intended to support strategic decision-making and influence processes on all organizational levels.

However, "[…] the final effectiveness of any management accounting system is dependent not only upon its design and technical characteristics, but also upon the precise manner in which the resulting data are used."[123] With information use, this research refers to the use of information by individual managers in order to realize specific purposes.[124]

1.3.2 Using Management Accounting Information for Influencing

1.3.2.1 Review of the Literature

PELZ (1978), building on the results of RICH (1977) and KNORR (1977), presents a typology on the use of social science information by political decision-makers that has often been employed in managerial research.[125] With regard to informational influence, the author describes a category called symbolic use of information.[126] PELZ (1978) thereby refers to the use of information as a substitute for decisions: "By initiating, distributing, and publishing a research report, the government official in this case tries to signal to those concerned that something is being done about the problem,

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[120] Horngren et al. (2005), p. 5; Wilson/Chua (1993), p. 16. Informal accounting information systems will not be examined. "Managers and staff often keep informal, non-legitimized sets of records concerning items typically of an economic and quantitative nature […] These non-legitimized records will be referred to as the informal accounting information system." Clancy/Collins (1979), p. 22; further cf. Simon et al. (1954), p. 34.

[121] Chenhall (2003), p. 129.

[122] Cf. Atkinson/Kaplan/Young (2004), pp. 3f.

[123] Hopwood (1974), p. 485.

[124] This definition takes over the semantic meaning of the verb to use, i.e., "[…] to employ for a purpose; put into action or service." Longman (1987), p. 1161.

[125] Cf. Steiners (2005); Sandt (2003); Karlshaus (2000); Menon/Varadarajan (1992).

[126] Pelz (1978) distinguishes instrumental, conceptual, and symbolic use of information. However, as the instrumental and conceptual uses of information do not apply to informational influence strategies as defined by this research, they will not be investigated further. Cf. Pelz (1978), pp. 349f.

while proper decisions and measures that should be taken are postponed or neglected altogether."[127] Furthermore, the symbolic use occurs when information is used to legitimize decisions that are made with retrospectively acquired information: "Here, the social scientists' data and arguments are used selectively and often distortingly to publicly support a decision that has been taken on different grounds or that simply represents an opinion the decision-maker already holds."[128]

BURCHELL ET AL. (1980) distinguish four roles of accounting information in the decision-making process that depend on the uncertainty of cause and effect and the uncertainty of objectives.[129] When cause-effect-relations are clear, but when there is no consensus about the objectives for organizational action, conflicts arise between the values, principles, and interests of the agents. The decision-making process becomes political and accounting information is used as an ammunition machine to support the agents' position.[130]

ANSARI/EUSKE (1987), in their longitudinal analysis on the use of cost accounting data in a military repair facility, discuss informational influence in conjuncture with the socio-political role of information, "[…] which is the pursuit of power and influence […]."[131] Cost accounting information is used to rationalize and justify organizational activities and to influence the perception and the behavior of organizational members.[132]

MENON/VARADARAJAN (1992) analyze how marketing information from research studies can be used by individual managers.[133] They elaborate on the classification of

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[127] Knorr (1977), p. 171; further cf. Pelz (1978), p. 351.

[128] Knorr (1977), pp. 171f. The distinctions resemble the political model and tactical model by Weiss (1979). In the political model, social science research is used to justify decisions made on other grounds. Only misuse and distortion of the findings are considered illegitimate. In the tactical model, "[…] social science research is used for purposes that have little relation to the substance of the research. It is not the content of the findings that is invoked but the sheer fact that research is being done." Weiss (1979), p. 429.

[129] Cf. Burchell et al. (1980), pp. 14f.

[130] Cf. Burchell et al. (1980), p. 14.

[131] Ansari/Euske (1987), p. 553. The authors describe three types of information use: "The foregoing analysis suggests that there are three alternative theoretical perspectives on the use of accounting data in organizations (1) technical-rational, which is driven by considerations of efficiency; (2) socio-political, which is the pursuit of power and influence, and; (3) institutional, which stems from the need to put on an appropriate facade for the world to see." Ansari/Euske (1987), p. 553.

[132] Cf. Ansari/Euske (1987), p. 552.

[133] Cf. Menon/Varadarajan (1992), pp. 61f.

PELZ (1978) and distinguish the knowledge enhancing, the affective, and the action-oriented use.[134] The action-oriented use describes the agents' changes of action due to the results and implications of the research. It encompasses the instrumental use that refers to the direct or immediate use of research results to solve a problem, and the symbolic use, which describes the agents' use of information "[…] to legitimize and sustain previously held beliefs."[135]

In their research on the use of budgeting information in decision-making processes, HIRST/BAXTER (1993) distinguish between instrumental, strategic, and symbolic use.[136] The strategic use serves as ammunition to assert the agents' preferences. Information is selectively gathered and presented in order to influence problem definitions and solutions.[137]

VANDENBOSCH (1999), in her research on the relationship between the use of management information systems and company performance, suggests four types of information use based on a literature review.[138] Among these, focusing attention comprises the agents' use of information to influence the targets. It goes back to BURCHELL ET AL.'s (1980) ammunition machine.

Summarizing the above review, all typologies include facets of using information for influencing other actors in the organization. However, none of them conceptually integrates all different types of information use for influencing. In doing so, this research subsequently follows and elaborates the argumentation of SCHÄFFER/STEINERS (2004).[139]

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[134] As the knowledge enhancing and the affective use of information are not relevant to influence strategies as defined by this research, they are not investigated further. For a detailed description cf. Menon/Varadarajan (1992), pp. 61f.

[135] Menon/Varadarajan (1992), p. 56.

[136] As their definitions of instrumental and symbolic uses of information do not apply to informational influence strategies as defined by this research, they will not be investigated further. Cf. Hirst/Baxter (1993), pp. 191f.

[137] Cf. Hirst/Baxter (1993), p. 192. Their definition follows the one provided by Feldman/March (1981), pp. 177f.

[138] Cf. Vandenbosch (1999), pp. 81f.

[139] Cf. Schäffer/Steiners (2004), pp. 386-389; further cf. Schäffer/Steiners (2005), pp. 216f.

1.3.2.2 Use of Management Accounting Information for Influencing ex-ante

The use of MAI for influencing ex-ante (UEA) describes the extent to which the agents (in this case supervisors) use MAI to influence collective decision-making processes with the targets (in this case subordinates) in order to realize their purposes. The objective is to offer the targets a course of action that will alter their perception of the desirability of the proposed tasks and thus lead to an increase in their expected value of the outcome. Because of their hierarchical position, the agents could order the targets to carry out their decisions. In this case, however, they do not rely on their legitimate power alone, but aim to gain full commitment from the targets. They involve the agents in the decision-making process, present the MAI that supports their position, and let the targets feel as if they participated and actually realized the final decisions. As the agents' final decisions are not made at the time of the influence attempt, this influence strategy is labeled influencing ex-ante.

UEA encompasses VANDENBOSCH's (1999) focusing attention, ANSARI/EUSKE's (1987) socio-political use of information, and BURCHELL ET AL.'s (1980) ammunition machine.[140] Further, UEA captures facets of HIRST/BAXTER's (1993) strategic use of information, MENON/VARADARAJAN's (1992) action-oriented use, as well as PELZ's (1978) symbolic use.[141] Regarding social psychology literature on influence strategies, UEA entails aspects of rationality, consultation, and information exchange as presented in chapter B1.2.[142]

1.3.2.3 Use of Management Accounting Information for Influencing ex-post

In contrast to UEA, the use of MAI for influencing ex-post (UEP) occurs when the agents use MAI to substantiate an order or an instruction given to the targets, who are excluded from the decision-making process. It is assumed that the agents have superior access to formal management accounting systems, substantiate and communicate decisions to the targets without prior consultation, and can expect compliance based on

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[140] Cf. Vandenbosch (1999), p. 82; Ansari/Euske (1987), p. 552; Burchell et al. (1980), p. 14.
[141] Cf. Hirst/Baxter (1993), p. 192; Menon/Varadarajan (1992), pp. 61f.; Pelz (1978), p. 351.
[142] Cf. Yukl/Falbe (1990), pp. 132f.; Frazier/Summers (1984), p. 45; Kipnis/Schmidt/Wilkinson (1980), p. 447.

their positions in the organizational hierarchy.[143] As this type of information use refers to a decision that has already been made, it is called influencing ex-post.

UEP resembles BURCHELL ET AL.'s (1980) rationalization machine. It further represents a facet of MENON/VARADARAJAN's (1992) action-oriented and PELZ's (1978) symbolic use of information.[144] Lastly, it resembles VANDENBOSCH's (1999) legitimizing decisions.[145] Regarding social psychology literature, UEP resembles assertiveness, requests, and recommendation as described in chapter B1.2.[146]

The outcomes resulting from UEA and UEP, or, in other words, supervisors' capacity to influence subordinates successfully, largely depend on the supervisors' power bases and the associated control of critical resources that subordinates need in order to accomplish their tasks.[147] Hence, to understand the types of power resources that supervisors can employ to exercise influence in organizational settings, in the following chapter, power theories will be introduced and a preferred theory selected for the context of the present research.

2. Power Bases as a Potential to Exercise Influence

While influence strategies are vital to understand how supervisors can motivate subordinates' incremental commitment and performance,[148] supervisors are more likely to employ certain influence strategies when they dispose of certain power bases and some influence strategies will require specific power bases to be effective in influencing subordinates.[149] However, "[…] leader schema studies overlooked a quintessential feature of leadership: the bases of the leader's power […]. By most conceptualizations, leadership is the use of influence […]. That influence, however, depends on one or more power sources […]."[150] In view of that, power theories are subsequently re-

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[143] Cf. Schäffer/Steiners (2004), p. 386; Somech/Drach-Zahavy (2002), p. 168.
[144] Cf. Menon/Varadarajan (1992), pp. 61f.; Pelz (1978), p. 351.
[145] Cf. Vandenbosch (1999), p. 82.
[146] Cf. Frazier/Summers (1984), p. 45.
[147] Cf. Venkatesh/Kohli/Zaltman (1995), pp. 71f.; Hirst/Baxter (1993), p. 190; Palich/Hom (1992), p. 280.
[148] Cf. Yukl/Kim/Chavez (1999), p. 137; Ivancevich/Donnelly (1970), pp. 539f.
[149] Cf. Yukl (2006), pp. 170f.
[150] Palich/Hom (1992), p. 280.

viewed and a 'suitable' theory selected to complement the analysis of informational influence strategies.

2.1 Power Theories – Review of the Literature and Selection for this Research

Power is one of the major areas of study in management. According to DAHL (1957), "[…] the concept of power is as ancient and ubiquitous as any that social theory can boast."[151] RUSSELL (1974) describes it as "[…] the fundamental concept in social science […] in the same sense in which energy is the fundamental concept in physics."[152] However, as any term attempting to explain fundamental concepts of society, the word power brings about diverse and contrasting interpretations. A multitude of power theories exist and one needs to find differentiation criteria attempting to grasp this "[…] sly and elusive phenomenon."[153]

Following SANDNER (1992), the object level is used as the first classification criterion. It specifies the level of analysis on which power is analyzed.[154] Typically, four levels of analysis are distinguished: individual, group, organization, and society.[155] As research on power has generally not differentiated between organizational and societal level, these two elements will be referred to as macro-level.[156] On the contrary, the meso-level describes power phenomena in groups or formal organizational subunits. Finally, the micro-level refers to those theories that attempt to explain power phenomena from the positions, actions, and/or motivations of individual actors.

As this research examines power and influence processes from the perspective of individual actors, theories on the micro-level of analysis are of primary relevance. Based on the three levels of analysis, Table 1 systemizes the main socio-scientific power theories. They are not claimed to be collectively exhaustive.

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[151] Dahl (1957), p. 210.
[152] Russell (1974), p. 12.
[153] Mintzberg (1983), p. XIV.
[154] Cf. Sandner (1992), p. 7.
[155] Cf. Astley/Van de Ven (1983), pp. 246f.
[156] Cf. Sandner (1992), p. 7.

Power Theory	Object Level		
	Micro	***Meso***	***Macro***
	Learning Theory (e.g., Adams/Romney 1959)	Bureaucracy Theory (e.g., Weber 1922)	Municipal Power Research (e.g., Dahl 1963; Bachrach/Baratz 1977)
	Exchange Theory (e.g., Thibaut/Kelley 1959; Homans 1974)	Exchange Theory (e.g., Emerson 1962; Cook 1987)	System Theory (e.g., Parsons 1966)
	Field Theory (e.g., Cartwright 1959; French Jr./Raven 1959)	System Theory (e.g., Etzioni 1975)	Contingency Theory (e.g., Pfeffer/Salancik 1978)
	Motivation Theory (e.g., Winter 1973; Kipnis 1976)	Decision Theory (e.g., Cyert/March 1992)	Labor Process Debate (e.g., Braverman 1974)
	Distance Theory (e.g., Mulder 1977)	Role Theory (e.g., Claessens 1974)	Critical Theory (e.g., Lukes 1974)
	Micropolitics (e.g., Porter/Allen/Angle 1981; Bosetzky 1977)	Contingency Theory (e.g., Hickson et al. 1971; Mintzberg 1983)	
		Political Organization Theory (e.g., Pfeffer 1981)	

Table 1: Overview of Socio-Scientific Power Theories[157]

While Table 1 illustrates the diversity of power theories, for the purposes of the present study, it is neither possible nor reasonable to provide an overview of all power theories on the micro-level.[158] It rather shows the need for further limitation criteria. As argued in chapter B1.3, supervisors' influence capacity largely determines their ability to influence other actors in the organization. In power theory, this influence capacity is referred to as power domain, power bases, or sources of power. In other words, it refers to some kind of resource that can be used to exercise influence. However, in contrast to economic resources that are coupled with criteria such as need satisfaction or scarcity,[159] power resources are neither a priori scarce nor do they satisfy certain needs. They are instead defined purely functional, i.e., as a potential to realize

[157] Own compilation following Sandner (1992), p. 8.
[158] Cf. Neuberger (1995) for an analysis of power on the micro-level.
[159] Cf. Thommen/Achleitner (2003), p. 104.

means-ends-relationships, and can be either material or immaterial.[160] The resource-criterion limits the focus on resource-oriented power theories.[161] They assume that the possibility of exercising power is dependent on the availability and disposability of resources: "Differences in pattern or structures of power may be attributed […] to the way in which 'resources' […] are distributed."[162] Ownership of these resources is usually not a mandatory precondition. It is rather important that actors can employ the available resources in certain situations to exercise influence. Figure 4 provides an overview of resource-oriented power theories.

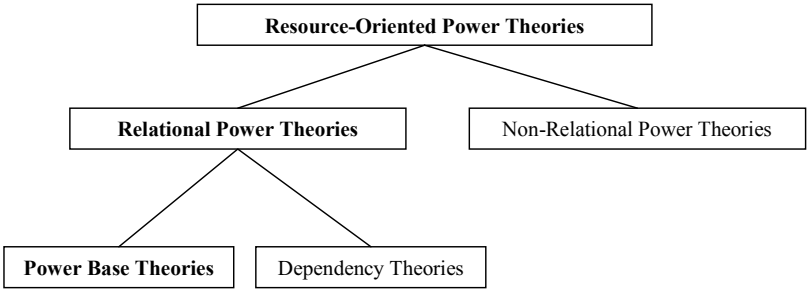

Figure 4: Resource-Oriented Power Theories[163]

Resource-oriented power theories distinguish between non-relational and relational power theories. The former one-sidedly regards the agents as power holders, while the latter also regards the targets. More specifically, non-relational power theories characterize power as the capacity of the agents or power holders. They have power because they are in possession of resources.[164] These theories do not consider the targets of influence. As the present research aims to analyze informational influence processes in

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[160] This includes personal characteristics such as the attractiveness of a supervisor.

[161] Accordingly, theories that conceive of power as a motive or discuss it from an intra-individual point of view will not be included. This does not imply an assessment or rating of any kind. Rather, it is assumed that the resource criterion is superior to other discrimination criteria. For theories that conceive of power as a motive, cf. McClelland (1975) and Winter (1973). For a theory that discusses power from an intra-individual point of view cf. Adler (2003).

[162] Dahl (1968), p. 409. Several power theories require the possession of those resources as a central criterion for exercising power in certain situations. Other power theories (only) call for the control of the resources by individual actors. Cf. Ehrensprenger (1985), p. 35; Tedeschi/Lindskold (1976), p. 336; Dahlström (1966), p. 237; Cartwright (1965), p. 5.

[163] Own compilation following Sandner (1992), p. 12.

[164] Cf. Sandner (1992), p. 13.

dyadic hierarchical social relationships between supervisors and subordinates, non-relational power theories will not be regarded.[165] In contrast, relational power theories differ as they consider, at least theoretically, the targets of influence. The power holders do not possess power per se, but rather possess power over specific targets. Power thus becomes a relational phenomenon.

Relational power theories distinguish between two power models, namely dependency and power base theories.[166] Dependency theories assume that the targets depend on the resources of the agents, for example, of the individuals involved in intraorganizational services. Power base theories study the resources of individual actors, i.e., they analyze the resources or groups of resources on the micro-level, which is the focus of the present research.[167] Both relational power theories build on similar assumptions that power is dependent on critical resources and the specific relationships between the agents and the targets. However, whereas dependency theories focus only on the fact that the targets are dependent on the access to the agents' resources, power base theories broaden the horizon and further take into consideration other specific sources of individual power resulting from factors such as charisma and expertise, for instance. Hence, power base theory will be used for the subsequent analysis.

2.2 Power Base Theory

2.2.1 Definition of Power and Power Bases

Power base theory analyzes power from the point of view of the individual actor. The starting point is the resources or groups of resources of the agents or power holders in organizational settings. The theory goes back to DAHL (1957), who defines the agents' power as "[…] the extent that A can get B to do something that B would not otherwise do."[168] Similarly, FRENCH JR./RAVEN (1959) conceive of social power as the potential ability of an actor to influence a target: "The *strength of power* of O/P in some system *a* is defined as the maximum potential ability of O to influence P in *a*."[169] These power

[165] For a discussion of non-relational power theories cf. Sandner (1992), pp. 13-15.
[166] Dependency theories are, among others, formulated by Pfeffer (1981) and Hinings et al. (1974).
[167] Cf. Sandner (1992), p. 16.
[168] Dahl (1957), pp. 202f.
[169] French Jr./Raven (1959), p. 152.

definitions do not clearly delineate the concept, as they do not (1) clearly separate power and influence, (2) specify what they mean by the 'system *a*', (3) question whether the targets will always act in accordance with the agents' wishes, and (4) question whether the agents' decisions are beneficial for the organization. In the following paragraphs, these shortcomings will be addressed.

First, many studies on power bases still mélange potential power with its actual usage.[170] As DAHL (1957) notes, social power is inert or passive, i.e., it describes a potential ability and not an actual usage.[171] Social power is, therefore, distinguished from social influence.[172] In order to explain this potential ability, terms like sources of power, domain of power, or bases of power are employed, whose definitions often remain vague. DAHL (1957) equates bases of power with source and domain.[173] FRENCH JR./RAVEN (1959) define the term even more confusingly: "By the basis of power we mean the relationship between O and P which is the source of that power."[174] They include in their definition an unclear reciprocal relationship and confound power with its domain. Hence, this research defines power bases as those material or immaterial requirements that actors can employ in given situations to exercise influence.

Second, power relations only exist in social relationships between or among actors.[175] FRENCH JR./RAVEN (1959) refer to social power and to the system *a*.[176] They exclude from their definition power occurring between actors that do not stand in a social relationship to one another. Power thus becomes a relational phenomenon, and power bases are only 'valid' when two or more actors stand in a social relationship. Further, power base theory theoretically considers the targets in this relationship. However, the objects of analysis are the resources of the agents. The effect of the exercise of power on the targets is implicitly seen as the dependent variable and the targets' characteristics are only theoretically considered. As the agents' choice of a particular influence

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[170] Cf. Frost/Stahelski (1988); further cf. Provan (1980) for the distinction between potential power and its actual usage.
[171] Cf. Dahl (1957), p. 203.
[172] Cf. chapter C2.1.
[173] Cf. Dahl (1957), p. 203.
[174] French Jr./Raven (1959), p. 155.
[175] As previously argued, self-influence is analyzed in this research.
[176] Cf. French Jr./Raven (1959), p. 152.

strategy will also depend on the targets they aim to influence,[177] this research includes targets' characteristics as moderating variables to complement power base theory.[178]

Third, the definitions implicitly indicate that the targets will act in accordance with the agents' wishes. They do not question whether power can be exercised against the will of others. While some researchers argue that the targets' resistance is a compulsory part of the power definition,[179] others raise the objection that power can also be exercised without resistance or conflict.[180] WEBER (1922) defines power as "[…] jede Chance, innerhalb einer sozialen Beziehung den eigenen Willen auch gegen Widerstreben durchzusetzen [...]."[181] The element "[…] *auch* gegen Widerstreben […]"[182] implies that resistance is not obligatory for power relations to occur. It does not assume an (open) conflict to arise between agents and targets. Thus, it can be assumed that higher-ranking supervisors in organizational settings are able to use their legitimate power base and assert leadership decisions 'also' against resistance.

Fourth, power base theory does not address the question whether the decisions of the agents accord with the goals of the organization or not. However, as the present research concentrates on informational influence strategies independent of the decisions that are being made by the agents, the decisions themselves made prior to the exercise of power are not questioned.

To summarize, this research defines power as the inferred potential of one person (the agent or supervisor) to cause another person (the target or subordinate) to act in accordance with the agent's wishes at a given point in time.[183] A power relationship is interpreted as "[…] a *causal relation* between the preferences of an actor regarding an outcome and the outcome itself."[184] The units of analysis are not individuals or groups in general, but "[…] actors operating from one or more structural positions within a spe-

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[177] For example, cf. Somech/Drach-Zahavy (2002), p. 176; Venkatesh/Kohli/Zaltman (1995), p. 74.
[178] Cf. chapter B1.1.4 and chapter C3.2.
[179] Cf. Pfeffer (1981), pp. 69f.; Dahl (1957), p. 202.
[180] Cf. Sandner (1992), pp. 74-77; Lukes (1974), pp. 99f. and pp. 124f.
[181] Weber (1922), I § 16, p. 28. Proposed translation (P.H.): "The probability that one actor in a social relationship will carry out his own will also against reluctance, no matter on what this probability is based." It needs to be pointed out that although Weber (1922) provides an assimilable power definition, he is not considered a power base theorist.
[182] Weber (1922), I § 16, p. 28 (italics added).
[183] Cf. Yukl (2006), p. 146; Bass (1990), pp. 170f.
[184] Pettigrew (1972), p. 188 (italics added).

cific social system."[185] The social system is the corporation. Lastly, the bases of power are defined as those material or immaterial requirements of the agents within a social system that they can employ in given situations to exercise influence.

Research on power bases suggests that the number of power bases as well as their effectiveness and efficiency vary with the research context.[186] While power base classifications can thus provide a framework for analysis, "[…] power takes on a very precise meaning only when the analysis is applied to a particular situation […]."[187] Accordingly, as the final selection and definition of power bases should follow the requirements of the respective research context, the following chapter reviews power base classifications from various fields to select an appropriate framework for analysis and to make necessary modifications for this research.

2.2.2 Classifications of Power Bases in Organizational Settings

2.2.2.1 Review of the Literature

In the fields of organizational and social psychology as well as business administration, a variety of power base classifications has been proposed.[188] The following question is at the center of their attention: Which power bases can be distinguished that the agents or power holders can employ in certain situations to exert influence?[189]

Despite the variety of classifications, FRENCH JR./RAVEN's (1959)[190] conceptualization and formulation of the bases of power has become known as "[…] perhaps the most widely quoted typology of power"[191] and "[…] has been the most widespread approach."[192] It is further argued that the FRENCH JR./RAVEN (1959) classification in-

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[185] Pettigrew (1972), p. 188.
[186] For instance, Raven/Schwarzwald/Koslowsky (1998) report that information, legitimate, and expert power are mostly used in a hospital setting. In contrast, Yukl/Kim/Falbe (1996), Yukl/Falbe (1991), and Frost/Stahelski (1988) suggest that expert and referent power are the most frequently employed power bases in managerial contexts.
[187] Astley/Sachdeva (1984), p. 104.
[188] Cf. Table 2 for a chronological review of the reviewed power base classifications.
[189] Cf. Raven (1992), p. 232.
[190] Cf. French Jr./Raven (1959).
[191] Mintzberg (1983), p. 25.
[192] Koslowsky/Schwarzwald/Ashuri (2001), p. 456. Many of the following classifications have used their typology as a reference point. For example, cf. Mintzberg (1983); Schneider (1978).

cluding the extension of RAVEN (1965) covers the fundamental bases of power proposed in the literature.[193] In view of that, this review begins with a detailed description of the FRENCH JR./RAVEN (1959) framework and later amendments by RAVEN (1965) and RAVEN (1992). Subsequently, further power base classifications are briefly reviewed and compared to the FRENCH JR./RAVEN (1959) and RAVEN (1965) power base classification. The review attempts to capture the most relevant power base classifications in managerial settings and to search for conceptually 'new' power bases that are not captured by the FRENCH JR./RAVEN (1959) framework. To be included in the review, studies have to deal with the agents' power bases as opposed to the actual means of influence and they have to conceptually extend prior frameworks. Studies that either confuse power bases and influence strategies or that merely try to empirically validate prior frameworks are accordingly excluded.[194]

FRENCH/RAVEN's Power Base Classification

In FRENCH JR./RAVEN's (1959)[195] initial categorization, the agents' ability to exercise influence is based on the control of five power bases: legitimate, reward, coercive, referent, and expert power.[196] The agents hold legitimate power by virtue of their position in the organizational hierarchy. As such, legitimate power is often referred to as formal power or authority. It is based on the targets' beliefs that the agents have a legitimate right to exercise power and refers to the agents' ability to induce in others feelings of task-related obligation and responsibility.[197] Reward power refers to the ability of the agents to assign positive outcomes to the targets, for example, pay increases or favorable work assignments.[198] Coercive power "[…] is similar to reward power in that it also involves O's ability to manipulate the attainment of valences."[199] In other words,

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[193] Cf. Raven (1992), p. 234.
[194] Accordingly, studies including Cartwright (1965), Marwell/Schmitt (1967), Wunderer/Grunwald (1980) are excluded, as their focus lies on influence strategies.
[195] Cf. French Jr./Raven (1959).
[196] Cf. French Jr./Raven (1959).
[197] Cf. Mossholder et al. (1998), p. 537. Legitimate power is conceptually similar to the zone of indifference within which subordinates will comply with supervisors' wishes. When supervisors assign task-related responsibilities to subordinates and stay within the bounds of formal authority, they are more likely to be perceived as rationally following established procedures. Cf. Barnard (1938), pp. 167f.
[198] Cf. French Jr./Raven (1959), p. 156. Further examples include fringe benefits or promotions. Cf. Sandner (1992), p. 18.
[199] French Jr./Raven (1959), p. 157.

it denotes the agents' ability to assign to the targets negative outcomes. It is characterized by ways of behavior directed at forcing compliance from subordinates through threat, confrontation, and punitive behavior that are outside of normal role expectations.[200] The use of these two power bases depends on (1) the agents' control over positive and negative outcomes for the targets and (2) the targets' beliefs that the agents will make use of these possibilities. Referent power describes the agents' personal characteristics perceived as attractive by the targets. It denotes the potential ability to administer feelings of personal acceptance or approval and depends on the targets' attitudes and feelings of identification towards the agents.[201] Finally, expert power derives from knowledge or other forms of job-related expertise attributed to the influencing agents, for example, the extent to which they can demonstrate competence in implementing, analyzing, and controlling the tasks of the targets.[202]

In RAVEN's (1965) first modification, information power is added as a sixth power base.[203] It is rooted in the information or logical argument that the agents can present to the targets in order to implement change. The content and the validity of the information are most important as they, independent of the transmitter of the information, can lead to internalized and lasting changes in the targets' beliefs, attitudes, and values.[204] With their limitation on six power bases, FRENCH JR./RAVEN's (1959) classification with the RAVEN (1965) amendment is concise and contains the advantage of incorporating psychological elements that go beyond the pure technical or economic resources dominating organization theory up to that time.[205]

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[200] Cf. French Jr./Raven (1959), pp. 157f. Examples include the firing of subordinates or the allocation of unpleasant tasks. Cf. Sandner (1992), p. 18; Hinkin/Schriesheim (1990), pp. 225f.

[201] Some researchers suggest that charisma should separately be included in the taxonomy. However, "[…] criterion-related validities showed little justification for making a distinction between referent power and charisma when defined as actor characteristics." Yukl/Falbe (1991), p. 422.

[202] Cf. French Jr./Raven (1959), pp. 163f. The standard of comparison for the superiority of A can be either his knowledge or his skills, or B can try to measure it against an external standard. For example, the consulting expertise of staff departments gives them high vertical power. Cf. Irle (1971), pp. 75-94.

[203] Cf. Raven (1965), pp. 372f.

[204] French/Raven (1959) mention information power in their initial classification. However, it is not included as a distinct power base but subsumed under expert power. Cf. French Jr./Raven (1959), p. 164. The control of information is firstly mentioned as a distinct power base of organizational participants by Mechanic (1962), pp. 349f.

[205] Cf. Sandner (1992), p. 17.

Although RAVEN (1992) "[…] still believe[s, P.H.] that most social influence can be understood in terms of the six bases of power […]"[206], the author proposes several additional distinctions. Specifically, the author argues that reward and coercive power have personal and impersonal forms, arguing that, besides the tangible rewards or punishments, they can be seen as including relational facets such as personal approval, praise, respect, and autonomy. Legitimate power is further distinguished in three categories. With legitimate power of reciprocity, the agents ask the targets to comply because they have previously done something for them.[207] With legitimate power of equity, RAVEN (1992) refers to a situation in which the agents require the targets to work hard because they also have to do so. Lastly, legitimate power of dependence refers to a "[…] norm saying that we have some obligation to help others who cannot help themselves."[208] Finally, RAVEN (1992) proposes that expert and referent power have positive and negative forms and that information power has a direct and indirect component, i.e., it can be presented directly or indirectly to the targets.[209]

According to this research's definitions of influence strategies and power bases, RAVEN's (1992) modifications blur the theoretical demarcation between these two constructs. Specifically, the distinction made between different sources of legitimate power confuses the real base of legitimate power (i.e., formal hierarchy), with the mode of how agents use that power, for example, by asking someone to return a favor. The same argumentation holds for RAVEN's (1992) distinction between positive and negative forms of expert and referent power, and between the direct and indirect presentation of information. All of these distinctions refer to the means or modes in which agents can influence the targets rather than the potential resources to exercise such influence. They are accordingly not regarded as distinct power bases by this research.

Review of further Power Base Classifications

SIMON (1957) is one of the first authors to propose four power bases that enable the agent A to influence the target B: rewards and sanctions, legitimation, trust of B in the

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[206] Raven (1992), p. 234.
[207] "I did that for you, so you should feel obliged to do this for me." Raven (1992), p. 234.
[208] Raven (1992), p. 235.
[209] Cf. Raven (1992), pp. 234f. An example for an indirect presentation of information is an overheard conversation. For the effectiveness of overheard communications cf. Walster/Festinger (1962).

expertness of A, and social acceptance.[210] These power bases directly resemble the reward, coercive, expert, and referent power bases suggested by FRENCH JR./RAVEN (1959). However, the author does not include the information power base.

KELMAN (1961) develops a theoretical framework that explains "[…] the processes by which people adopt and express particular opinions."[211] The author builds his analysis on three different outcomes that vary in the degree to which the targets accept influence attempts: compliance, identification, and internalization.[212] The author then proposes three power bases, for which he expects a difference in the outcomes: means control, attractiveness, and credibility. With means control, KELMAN (1961) refers to the agents' ability to provide the targets with the necessary resources that lead to their compliance. Under attractiveness, the author subsumes "[…] the possession of qualities on the part of the agent that make a continued relationship to him particularly desirable."[213] Attractiveness of the agents is suggested to lead to the targets' identification. Finally, with credibility, the author refers to the extent of trustworthiness and validity of the agents' statements.[214] A high credibility leads to internalization of the tasks. Means control, attractiveness, and credibility resemble FRENCH JR./RAVEN's (1959) reward and coercive, referent, as well as expert power bases. KELMAN (1961) does not include equivalents for the legitimate or information power bases.

ETZIONI (1961) analyzes the conditions of intraorganizational control.[215] The author argues that power is exercised through coercive, remunerative, or normative power bases.[216] Coercive power implies the allocation or threat of allocation of physical force. Remunerative power includes the control over material resources, disposal of labor or of technical and/or administrative skills such as expertness. Finally, normative power, which can also be called manipulative or persuasive power, includes the allocation or non-allocation of symbolic rewards. ETZIONI (1961) argues that his categorization of power bases is exhaustive, i.e., all possible types of power can be assigned to

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[210] Cf. Simon (1957), pp. 104f.
[211] Kelman (1961), p. 57.
[212] For a more detailed discussion of the three outcomes cf. Kelman (1961), pp. 62-66.
[213] Kelman (1961), p. 68.
[214] Cf. Kelman (1961), p. 68.
[215] Etzioni (1975), p. 3. This quote and the following citations originate from the revised and enlarged edition of the Etzioni (1961) publication. The 1975 edition contains the same theory, but extends it by research and arguments that emerged in reaction to the original publication.
[216] Cf. Etzioni (1975), p. 5.

one or more of these categories. When comparing the two classifications, it becomes evident that ETZIONI's (1961) power base classification is similar to FRENCH JR./RAVEN (1959). Positive and negative forms of ETZIONI's (1961) remunerative power correspond to FRENCH JR./RAVEN's (1959) reward and coercive power bases. ETZIONI's (1961) normative power correlates to their referent power base. Similarly, FRENCH JR./RAVEN's (1959) expert power base can be assigned to the latter. The information power base included by RAVEN (1965) cannot clearly be assigned to one of the three categories by ETZIONI (1961). On the one hand, ETZIONI (1961) regards control of information as an important part of his normative power category. On the other hand, he argues that the use of normative power includes resistance on part of the targets of influence, which cannot be expected when persuading the targets by the use of information. Further, the FRENCH JR./RAVEN (1959) legitimate power base does not find a counterpart in ETZIONI's (1961) trilogy of power bases. The author does not view legitimate power as a distinct power base, arguing rather that the targets accept his three power categories as legitimate, i.e., legitimacy is a prerequisite for his power categories to be effective.[217]

GAMSON (1968), similar to ETZIONI (1961), distinguishes three types of power resources: force, incentives, and persuasion.[218] Force and incentives relate to FRENCH JR./RAVEN's (1959) reward and coercive power bases. Persuasion resembles ETZIONI's (1961) normative power and accordingly includes facets of the referent, expert, and information power bases of FRENCH JR./RAVEN (1959). GAMSON (1968) does not include legitimate power as a separate power resource.

WEBER (1968) distinguishes traditional, charismatic, and rational-legal power bases.[219] Traditional power refers to the extent to which the targets accept the agents' commands as legitimate and reasonable as they correspond to established patterns of behavior.[220] The second power resource centers on the agents' charisma, i.e., certain per-

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[217] Cf. Etzioni (1975), p. 15.
[218] Cf. Gamson (1968), p. 75 and p. 100.
[219] Cf. Weber (1968).
[220] Examples include orders that supervisors give to subordinates. Subordinates follow the request because they perceive that it is the supervisors' legitimate right to prescribe behavior and it is furthermore expected from someone of their status in the hierarchy.

sonality characteristics that are perceived as attractive by the targets.[221] Finally, rational-legal power refers to known rules, laws, or policies that are legally specified.[222] Traditional and rational-legal power bases resemble FRENCH JR./RAVEN's (1959) legitimate, while charismatic power comes closest to their referent power base. WEBER (1968) includes neither reward nor coercive power, nor does he incorporate expert or information power in his typology.

LEHMAN (1969) analyzes "[…] how social power as a property of macroscopic social systems differs from power in other types of social entities."[223] The author aggregates and unifies prior works of GAMSON (1968) and ETZIONI (1961), reporting three types of power bases: remunerative, force, and normative power.[224] Remunerative power combines facets of FRENCH JR./RAVEN's (1959) reward and coercive power bases, while force relates only to the coercive power base. However, RAVEN (1992) alludes to the fact that force does not easily fit into a categorization of power bases as it does not "[…] involve volition on part of the target."[225] Normative power comprises parts of FRENCH JR./RAVEN's (1959) referent, expert, and information power bases. Legitimacy is not included as a distinct power base.

PATCHEN (1974) analyzes the bases of power in decision-making processes.[226] After criticizing FRENCH JR./RAVEN's (1959) bases of power for not being "[…] described in a conceptually parallel way […]"[227], PATCHEN (1974) reports six power bases that the agents can use to exert influence: knowledge, control over material rewards, control over penalties, approval, symbols of legitimacy, and own cooperation. Despite the author's critique of the FRENCH JR./RAVEN (1959) framework, the first five power bases resemble the ones identified by FRENCH JR./RAVEN (1959). Knowledge hereby includes expert and information power. Control over material rewards and control over penalties resemble FRENCH JR./RAVEN's (1959) reward and coercive power. Approval and symbols of legitimacy respectively refer to referent and legitimate power. Only

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[221] Weber (1968) defines charismatic authority as "[…] resting on devotion to the exceptional sanctity, heroism or exemplary character of an individual person, and of the normative patterns or order revealed or ordained by him." Weber (1968), p. 215.
[222] Examples include standard operating procedures in organizations.
[223] Lehman (1969), p. 453.
[224] Cf. Lehman (1969), p. 454.
[225] Raven (1992), p. 236.
[226] Cf. Patchen (1974), p. 216.
[227] Patchen (1974), p. 196.

own cooperation, which relates to the targets' involvement in the decision-making process, is considered an extension.[228] However, according to the present research's definition of power bases and influence strategies, own cooperation refers to a mode in which influence can be exercised rather than constituting a distinct power base.

Building on the research by TEDESCHI/SCHLENKER/LINDSKOLD (1972) and TEDESCHI/BONOMA (1972), TEDESCHI/LINDSKOLD (1976) name five bases of power: control of resources, status, attractiveness, expertise, and credibility.[229] With regard to the control of resources, the authors allude to the fact that the agents' promises and threats need to be deliverable, although there is a possibility of a simple pretense.[230] Status, attractiveness, and expertise refer to the legitimate, referent, and expert power base in FRENCH JR./RAVEN's (1959) framework. Only credibility, which refers to the truthfulness and accuracy of the influencing agents, cannot be assigned to the FRENCH JR./RAVEN (1959) framework with clarity. It can be argued that it is partly covered by their referent power base. However, while TEDESCHI/LINDSKOLD (1976) include credibility as a distinct resource for exercising influence, this research believes that credibility must rather be considered an outcome in a social relationship that results from an appropriate use of other power bases in prior situations.

KRÜGER (1976) discusses FRENCH JR./RAVEN's (1959) framework arguing that it is the most frequently employed classification for business management research. The author extends the original framework by ownership and ecological control.[231] However, the author argues that the latter two power bases are only of secondary interest in business settings and presumes that the analysis of power in a business context can be narrowed down to two power bases: sanctions, under which he subsumes FRENCH JR./RAVEN's (1959) reward and coercive power, and information, which includes the expertness of the influencing agents: "Damit dürften die wichtigsten innerbetrieblich wirksamen Machtgrundlagen erfasst sein."[232]

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[228] The empirical data reveal that own cooperation and expert power are the most frequently cited bases of power to influence purchase decisions. In contrast, sanctions and rewards are "[…] noticeably chiefly by their absence." Patchen (1974), p. 197.

[229] Cf. Tedeschi/Lindskold (1976); Tedeschi/Schlenker/Lindskold (1972); Tedeschi/Bonoma (1972).

[230] Cf. Tedeschi/Lindskold (1976), p. 349.

[231] Cf. Krüger (1976), pp. 16f.

[232] Krüger (1976), p. 17. Proposed translation (P.H.): "That should capture the most important and effective intra-organizational power bases."

SCHNEIDER (1978) argues that he cannot concur with existing power base classifications, as none of them is able to cover all bases of power. However, FRENCH JR./RAVEN's (1959) classification including RAVEN's (1965) extension would come closest to his perception.[233] The author, nevertheless, extends the framework by situative control, which refers to the agents' ability to change the targets' environment in such a way that it would bring about the agents' preferred decisions.[234] However, situative control, which is also referred to as manipulative control, denotes a way in which influence can be exercised, rather than constituting agents' power resource.

BACHARACH/LAWLER (1980) use ETZIONI's (1961) typology of power bases, criticizing that knowledge is underrepresented as a power resource. Accordingly, next to ETZIONI's (1961) coercive, remunerative, and normative power, the authors introduce knowledge as a fourth power base, which resembles the FRENCH/RAVEN (1959) expert power base.[235] Legitimate power is not included for the reasons discussed above in ETZIONI's (1961) classification.

LATTMANN (1982) employs the FRENCH JR./RAVEN (1959) classification and extends it by the power of an idea (Macht einer Idee), for which he does not provide a theoretical basis.[236] The author argues that the content of the message is important to initiate a change in the targets. However, given the present research's definition of power bases, an idea is not considered a power resource that agents can make use of in given situations to exercise influence.

MINTZBERG (1983) proposes five power bases: resources, technical skills, body of knowledge, legal prerogatives, and access to those individuals in the organization that have access to the other four power bases.[237] The author argues that FRENCH JR./RAVEN's (1959) five bases of power can be assigned to one or more of his categories: "Their 'reward' and 'coercive' power are used formally by those with legal prerogatives and may be used informally by those who control critical resources, skills, or knowledge […] Their 'legitimate' power corresponds most closely to our legal pre-

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[233] Cf. Schneider (1978), p. 17.
[234] Cf. Schneider (1978), p. 21; further cf. Cartwright (1965), pp. 12f.
[235] Cf. Bacharach/Lawler (1980), p. 34.
[236] Cf. Lattmann (1982), p. 70.
[237] Cf. Mintzberg (1983), p. 24.

rogatives and their 'expert' power to our critical skills and knowledge."[238] According to MINTZBERG (1983), referent power refers to the political skills that agents should possess to use the other power bases successfully. It is questionable whether network power should be included as a distinct power resource, as an increase of legitimate power is usually accompanied by access to those higher in the organization.

GALBRAITH (1983) follows ETZIONI's (1961) classification, but employs a different nomenclature. The author proposes three types of power resources: coercive power, reward power, and power through conditioning.[239] Conditioning occurs either explicitly through information, expertise, or training, or implicitly through cultural influences or professional socialization. Accordingly, conditioning combines information, expert, and referent power bases of the FRENCH JR./RAVEN (1959) classification.

MULDER ET AL. (1986) assess the effectiveness of different power bases in crisis and non-crisis situations. The authors differentiate among sanction, expert, and formal power bases, as well as open communication.[240] In their typology, sanction power refers to the reward and coercive power bases in FRENCH JR./RAVEN's (1959) typology. Expert and formal power find their equivalents in FRENCH JR./RAVEN's (1959) expert and legitimate power bases. Finally, MULDER ET AL. (1986) regard open communication as a part of the information power base. However, according to the definition of power bases and influence strategies in this research, open communication is a mode in which influence can be exercised and is not considered a distinct power base.[241]

FINKELSTEIN (1992) proposes and empirically validates four bases of power by top-level executives. The author labels these structural, ownership, prestige, and expert power.[242] Structural and expert power bases resemble the legitimate and expert power bases in the FRENCH JR./RAVEN (1959) nomenclature. Ownership power designates both formal power such as equity ownership and informal power such as the status of the founder.[243] As such, it involves the ability to bestow positive and negative outcomes on the targets, i.e., reward and coercive power as well as legitimate power.

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[238] Mintzberg (1983), p. 25.
[239] Cf. Galbraith (1983), p. 4.
[240] Cf. Mulder et al. (1986), p. 566.
[241] It further resembles Patchen's (1974) own cooperation. Cf. Patchen (1974), p. 217.
[242] Cf. Finkelstein (1992), pp. 508-510.
[243] Cf. Finkelstein (1992), p. 509.

Prestige refers to managers' reputation, which resembles FRENCH JR./RAVEN's (1959) referent power.

BLICKLE/WITTMANN/RÖCK (1997) study the effect of four different power bases, namely network power, sociability, sanction power, and expert power, on the choice of different influence strategies.[244] Network power describes a process by which the agents add pressure for conformity on the targets by invoking the help of higher levels in the organization. The definition of network power refers to an influence strategy rather than a distinct power resource.[245] Sociability describes the agents' capacity to easily make new contacts and use them to their advantage. It includes part of the FRENCH JR./RAVEN (1959) referent power. Sanction power includes FRENCH JR./RAVEN's (1959) reward and coercive power base, and expert power subsumes FRENCH JR./RAVEN's (1959) expert and information power base.

KRAUSE ET AL. (2002) analyze the bases of power in an orchestra setting, arguing that the number of power bases suggested by FRENCH JR./RAVEN (1957) and RAVEN (1965) as well as RAVEN (1992) would likely be different in that research context.[246] Using SEM, the authors calculate five different models with differing numbers of power bases. While four of the models do not fulfill the goodness-of-fit criteria, results are adequate for the four-factor model. These four factors include the expert/referent, personal and impersonal reward/coercive, legitimate, and information power bases.[247]

Summarizing the above review, there are six bases of power distinguished in the literature, most of which are covered by the FRENCH JR./RAVEN's (1959) classification including the RAVEN (1965) extension: reward, coercive, referent, expert, information, and legitimate power bases. These power bases are depicted in the first six columns of Table 2. The analogousness of the columns' terminology does not imply that they are identical in content, but instead points to a great proximity. Several authors propose new power bases in their studies, which are depicted in the right-hand column of Table 2. However, these power bases are put in parentheses, as they show different modes in which influence can be exercised and are accordingly not considered distinct power bases in the present research context.

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[244] Cf. Blickle/Wittmann/Röck (2002).
[245] This influence strategy was labeled upward appeal by Kipnis/Schmidt/Wilkinson (1980), pp. 447f.
[246] Cf. Krause et al. (2002).
[247] Cf. Krause et al. (2002), p. 130.

Author(s) (Year)	Power Bases						
	Reward	Coercive	Referent	Expert	Information	Legitimate	Other
Simon (1957)	Reward and Coercive		Appreciation	Expert		Legitimate	
French Jr./Raven (1959); Raven (1965)	Reward	Coercive	Referent	Expert	Information	Legitimate	
Kelman (1961/1974)	Means Control		Attractiveness	Expert			
Etzioni (1961/1975)	Remunerative	Coercive	Normative				
Gamson (1968)	Incentives	Force	Persuasion				
Weber (1968)			Charisma			Traditional/ Rational-Legal	
Lehman (1969)	Remunerative	Force	Normative				
Patchen (1974)	Reward	Penalties	Appreciation	Expert		Legitimate	(Processual Integration)
Tedeschi/ Lindskold (1976)	Resource Control		Attractiveness	Expert		Status	
Krüger (1976)	Sanctions			Information			
Schneider (1978)	Reward	Coercive	Referent	Expert	Information	Legitimate	(Situative Control)
Bacharach/Lawler (1980)	Remunerative	Coercive	Normative		Knowledge		
Lattmann (1982)	Reward	Coercive	Referent	Expert		Legitimate	(Idea)
Mintzberg (1983)	Resource Control			Technical Skills	Knowledge	Legitimate	(Networks)
Galbraith (1983)	Reward	Coercive	Conditioning				
Mulder et al. (1986)	Sanction		Identification	Expert	Open Communication		
Raven (1992)	Personal Reward / Impersonal Reward	Personal Coercive / Impersonal Coercive	Positive/ Negative Referent	Positive Expert / Negative Expert	Direct Information / Indirect Information	Legitimate (a) Formal; (b) Reciprocity; (c) Dependence; (d) Equity	
Finkelstein (1992)	Ownership		Prestige	Expert		Structural; Ownership	
Blickle/Wittmann/ Röck (1997)	Sanctions		Sociability	Expert			(Networks)
Krause et al. (2002)	Personal/Impersonal Reward/Coercive		Expert/Referent		Information	Legitimate	

Table 2: Chronological Review of Power Base Classifications

2.2.2.2 Modifications for the Present Research

The FRENCH JR./RAVEN (1959) classification was shown to cover the fundamental power bases distinguished in the literature until today and will, therefore, be used for the subsequent analysis. However, the classification has been criticized for presenting an unclear theoretical demarcation between different power bases. Specifically, the differentiation between the expert and information and the reward and coercive power bases are imprecise.[248] Furthermore, as argued above, the final power base definitions shall follow the respective research problem.

With regard to the demarcation between the expert and the information power base, RAVEN (1965) argues that they are two different concepts. Whereas expert power would depend on the perceived expertness of the agents,[249] information power would be based on the logic of the arguments or facts.[250] RAVEN (1965) refers to the logic of the argument presented to the targets and thus approaches the information power base from the reactions of the targets and not from the source of that power, which is the agents' access to information that they can subsequently use to influence the targets. Given the underlying assumption that "[t]he resources which form the base of an actor's power are assumed to be differentially located by structural position […]"[251], this research follows PETTIGREW (1972) rather than RAVEN (1965) and defines information power as the agents' access to and control over formal management accounting systems that the targets do not have access to. It is thereby clearly distinguished from expert power, which is based on job-related experience and expertise.[252] Although it is recognized that there are other formal information systems that would also constitute an information power base, in the present definition, management accounting systems provide future-oriented, financial, and non-financial information as well as company-external information about markets, customers, and/or competitors. Thus, in this broad definition, they encompass other formal information systems.[253]

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[248] Cf. Sandner (1992), p. 23.
[249] Cf. Stern/El-Ansary (1988), p. 276.
[250] Cf. Raven (1965), pp. 372f.
[251] Pettigrew (1972), p. 189.
[252] Cf. Pettigrew (1972), pp. 188f.
[253] For a detailed description of management accounting systems cf. chapter B1.3.1.

Further, the demarcation between the reward and the coercive power base is imprecise. RAVEN/SCHWARZWALD/KOSLOWSKY (1998) report that reward and coercive power load on the same construct and that a separation should be made between personal and impersonal components.[254] Hence, besides tangible rewards and punishments, these power bases include relational facets such as personal approval and praise on the one hand, and personal rejection on the other hand. Therefore, this research will distinguish between personal and impersonal reward/coercive power bases.

To summarize, the following power bases will be used for the present research context: legitimate, information, impersonal reward/coercive, personal reward/coercive, referent, and expert power. The first three of these power bases are related to the agents' position in the hierarchy. The organization in general and the managerial hierarchy in particular specify the degree to which agents can employ these power bases. In contrast, the agents' personal reward/coercive, referent, and expert power bases are not related to the organizational system. They are instead related to the agents' technical, behavioral, and managerial skills. Table 3 summarizes the power bases employed by the present research.

Power Base	Definition
Legitimate	Describes the degree to which the agents have the legitimate right to prescribe behavior to their subordinates based on their hierarchical position.
Information	Describes the agents' access to and control over MAI that the targets do not have access to.
Impersonal Reward/Coercive	Describes the perceived ability of the agents to administer impersonal outcomes, which are either rewarding or non-desirable.
Personal Reward/Coercive	Describes the perceived ability of the agents to administer personal approval or disapproval.
Referent	Describes the agents' ability to administer feelings of personal acceptance or approval. It is based on the targets wanting to identify with the agents.
Expert	Describes the agents' perceived professional knowledge and competence.

Table 3: Summary of the Power Bases Employed for the Present Research

[254] Cf. Raven/Schwarzwald/Koslowsky (1998), pp. 313-315. The authors label them personal sanctions and impersonal sanctions.

3. Intermediate Results

Influence strategies, characterized as strategic maneuvers of the influencing agents (in this case supervisors), aim to initiate adjustments of the targets' (in this case subordinates') knowledge, attitude, or overt behavior. Influence strategies result in various influence outcomes, of which subordinates' organizational commitment and job performance were shown to be particularly important following social psychology research. The outcomes of influence strategies further vary in intensity depending on various moderating factors including the supervisors' power bases, subordinates' characteristics, and task difficulty.

While various studies in the field of social psychology have proposed and stressed the importance of informational influence strategies, none of them specifies the types of information that can be used in organizations for exercising influence, nor do they discuss different modes in which the agents can present that information to influence the targets.[255] At this point, research on the use of information was employed to derive two ways in which supervisors can use MAI to influence their subordinates: UEA and UEP. Both of these informational influence strategies are carried out with direct reference to a concrete decision, but vary in an important aspect of managerial decision-making, namely the extent to which subordinates share it. UEA involves some part of subordinates' influence. The objective is to offer subordinates a course of action that will alter their perception of the desirability of the proposed decision and lead to an increase in their expected value of the outcome by being pushed in the desired direction. In contrast, UEP excludes subordinates from the decision-making process. Higher-ranking supervisors have superior access to formal management accounting systems, and their decisions are communicated to subordinates without prior consultation. In both cases, the flow of information is directed downwards.

As "[…] influence, however, depends on one or more power sources […]"[256], power theories were introduced and classified according to the object level and the resource criterion. Power base theory was chosen among the variety of power theories for this research. It analyzes power from the point of view of the individual actor. The starting

[255] Cf. chapter B1.2 for a detailed review.
[256] Palich/Hom (1992), p. 280.

point is the power bases of the agents, which were defined as those material or immaterial requirements that the agents can employ in given situations to exercise influence. A review of power base classifications showed that the FRENCH JR./RAVEN (1959) framework including RAVEN's (1965) amendment covers the fundamental power bases suggested in the literature until today. As the final selection of power bases depends on the respective research context, three modifications were undertaken for this research. Resultantly, six power bases were distinguished for the subsequent analysis: legitimate, information, impersonal reward/coercion, personal reward/coercion, referent, and expert power bases.

As previously argued, "[t]he relationship among specific forms of power, specific influence behaviors, and influence outcomes is complex and not well understood."[257] In the following chapter, it is proposed how the two uses of MAI for influencing, UEA and UEP, should affect the two influence outcomes, subordinates' commitment and performance, and how supervisors' power bases, subordinates' characteristics, and task difficulty should moderate these relationships. Given the absence of theoretically well-established relationships between these variables, this research is deemed exploratory in nature. For that reason, tentative propositions about the patterns of relationships are developed, but they are not claimed to be collectively exhaustive.

[257] Yukl (2006), p. 169.

C Developing the Causal Model

1. Assumptions of this Research

This research makes various assumptions about the design of the study that affect the following propositions as well as the choice and advantageousness of the research methods presented thereafter. Hence, the research assumptions are initially discussed:

- It is assumed that the company or the companies involved dispose of formal management accounting systems. This leads to an exclusion of small companies from the population, as they seldom dispose of formal management accounting systems, and employees would unlikely be able to answer the questions meaningfully.[258]
- Studies on the use of information have oftentimes assumed that the same types of information are provided to all study participants across different organizations and/or industries.[259] As DIAMANTOPOULOS/SOUCHON's (1998) research yields significantly different results for the use of different types of export information,[260] the data should ideally be collected from employees who work on similar hierarchical levels within one firm. This would ensure that they are provided with the same types of MAI and further guarantee that individual attributes are less contaminated by different organizational contexts. However, the company under study needs to have a large number of employees to yield statistically reliable results.
- Finally, this research analyzes top-down influence assuming a strong hierarchy with long-term supervisor-subordinate-relationships and clear competencies. This is because "[p]ower is a useful concept for describing social structure only if it has a certain stability over time."[261] This excludes from the study professional service firms that propagate flat hierarchies, work on a short-term project basis, and make decisions based on the one-firm concept.[262]

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[258] Cf. Kosmider (1994), pp. 108-135.
[259] For example, cf. Bisbe/Otley (2004); Vandenbosch (1999).
[260] Cf. Diamantopoulos/Souchon (1998), p. 123.
[261] French Jr./Raven (1959), p. 152.
[262] "In contrast to many of their […] competitors […], one-firm firms place great emphasis on firm-wide coordination of decision-making, group identity, cooperative teamwork, and institutional commitment." Maister (2003), p. 305.

2. Main Model

2.1 Proposed Relationships Between Using Management Accounting Information for Influencing and Subordinates' Commitment

Informational influence strategies employed by supervisors initiate targeted-learning processes and lead to adjustments of subordinates' actions and behavior. The purpose is to influence subordinates lastingly, thereby ultimately gaining their commitment.[263]

Research studies on the use of information have not empirically tested the effects of different uses of information for influencing on subordinates' commitment. These studies either provide no empirical evidence,[264] examine only the descriptive validity of different types of information use,[265] or employ outcome variables related to organizational performance rather than subordinates' commitment.[266] Consequently, as research on the use of information is not conducive to derive propositions for these relationships, research on participative management is employed as an auxiliary construct. Participative management aims to "[…] balance the involvement of managers and their subordinates in information processing, decision-making, or problem-solving endeavours."[267] On a continuum between participative and authoritative management, UEA resembles a more participative and UEP a more authoritative leadership behavior.[268]

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[263] Cf. chapter B1.1.3 for a detailed description of the outcomes of influence strategies.

[264] Menon/Varadarajan (1992), Burchell et al. (1980), and Pelz (1978) include aspects that deal with influencing other actors in the organization. However, their primary aim is to develop alternate typologies on how information can be used in different settings. They neither empirically test their typologies of information use nor discuss the effects of informational influence on subordinates' commitment. Cf. Menon/Varadarajan (1992); Burchell et al. (1980); Pelz (1978).

[265] Hirst/Baxter (1993) and Ansari/Euske (1987) undertake empirical research, but do not analyze the outcomes of different uses of information for influencing. Instead, they seek to investigate "[…] the descriptive validity of theoretical typifications of how choices are made in organizational settings […]." Hirst/Baxter (1993), p. 187; further cf. Ansari/Euske (1987).

[266] For example, cf. Sandt (2004); Karlshaus (2000); Vandenbosch (1999); Diamantopoulos/Souchon (1998); Vandenbosch/Huff (1997).

[267] Wagner III (1994), p. 312.

[268] Empirical studies that employ related outcome variables to subordinates' commitment such as subordinates' motivation or attitude are excluded from the review, because they are not directly comparable. Cf. Brownell/McInnes (1986); Kenis (1979).

Since the seminal study of COCH/FRENCH JR. (1948), organizational researchers suggest that people react favorably and enhance their commitment to carry out decisions in which they participated or in which they had the impression of participating.[269] MARCH/SIMON (1958) argue that the more subordinates can participate in decisions, the more strongly they will tend to identify with the organization.[270] LIKERT (1961) also notes that "[s]ubordinates react favorably to experiences which they feel are supportive and contribute to their sense of importance and personal worth."[271]

Several studies empirically confirm the positive impact of participation in decision-making on subordinates' commitment. RODWELL/KIENZLE/SHADUR (1998), BOSHOFF/MELS (1995), DECOTIIS/SUMMERS (1987), ZAHRA (1984), RHODES/STEERS (1981), and MORRIS/STEERS (1980) find positive and significant correlations between the two variables for different samples and industries in the United States and Australia.[272] As depicted in Table 4, the results are based on surveys with medium to large sample sizes (76 to 369 respondents) and high response rates between 36.8 and 82.0 percent. While the variables used to measure participation in the decision-making process vary with the research context,[273] all but one study employ the same commitment variable from MOWDAY/STEERS/PORTER (1979).[274] As all measures furthermore consist of multiple indicators and most studies, with the exception of RODWELL/KIENZLE/SHADUR (1998), posit satisfactory reliability and validity of the measures (cf. Table 4), the results are comparable concerning the consistently positive and significant correlations between different types of participation on subordinates' commitment.

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[269] Their 1948 study is the first known published reference to research on resistance to change in organizations. It was conducted at the Harwood Manufacturing Company, a pajama factory located in Virginia, and focused on two questions: (1) Why do people resist change so strongly and (2) what can be done to overcome this resistance? Cf. Coch/French Jr. (1948), pp. 512f.

[270] Cf. March/Simon (1958), p. 74; further cf. March/Simon (1993), pp. 73f. and p. 115.

[271] Likert (1961), p. 102.

[272] Cf. Rodwell/Kienzle/Shadur (1998); Boshoff/Mels (1995); DeCotiis/Summers (1987); Zahra (1984); Rhodes/Steers (1981); Morris/Steers (1980).

[273] As shown in Table 4, Rodwell/Kienzle/Shadur (1998) and Boshoff/Mels (1995) use measures by Teas/Wacker/Hughes (1979) and White/Ruh (1973), respectively. DeCotiis/Summers (1987) and Rhodes/Steers (1981) use newly developed measures. Zahra (1984) and Morris/Steers (1980) employ adapted measures of Vroom (1960).

[274] Cf. Mowday/Steers/Porter (1979); further cf. chapter D2.1 for the measurement of subordinates' commitment in this dissertation, in which a shortened version of the Mowday/Steers/Porter (1979) 15-indicator measure is employed that excludes the reverse coded indicators.

However, several aspects need to be addressed, which limit the generalizability of the results to this research context: Most studies were conducted among low-level employees; they were all conducted in the United States or Australia, and they do not focus on management accounting.

The first aspect raises the question about whether similar mechanisms apply to high-level employees being the focus of this research. In a case study at Delta Airlines, KAUFMAN (2003) analyzes a high-level employee involvement by means of extensive field research and interviews conducted over a six-year period.[275] Regarding the effect of participation on subordinates' commitment, the author concludes that "[o]ne of the fine arts of successful high-level EI [i.e., employee involvement, P.H.] is keeping the councils and forums energized and focused on organizational excellence. […] the wider the boundaries and the larger the scope for employee responsibility and participation in decision-making, the more likely it is that they will stay interested and committed to the process."[276] Thus, it can be assumed that similar mechanisms apply to high-level employees.

The second aspect concerns the question about whether the results can be generalized to other cultures, in particular Germany, as all of the studies were conducted in the United States or Australia. This is emphasized by the findings of a cross-cultural study by LINCOLN/KALLEBERG (1985) among 8,000 employees in American and Japanese manufacturing firms. While centralization in decision-making is negatively correlated with subordinates' commitment for the American sample (-0.05, $p \leq 0.05$), it is positively correlated with subordinates' commitment for the Japanese sample (0.05, $p \leq 0.05$).[277] The authors argue that Japanese firms practice a more consensus-based management, in which participation becomes "[…] a ritualized affair which a sizeable percentage of workers see as a burden imposed by management."[278] Similarly, in a survey among 300 employees in the Chinese food industry, CHIU (2002) finds no significant relationship (0.04, non-significant) between the two variables and concludes: "How useful the notions of […] participation […] are to a successful bonding between employees and organizations in the PRC [i.e., People's Republic of China, P.H.] re-

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[275] Cf. Kaufman (2003).
[276] Kaufman (2003), p. 188.
[277] Cf. Lincoln/Kalleberg (1985), p. 751.
[278] Lincoln/Kalleberg (1985), p. 754.

mains unclear."[279] Asian countries are generally characterized by high uncertainty avoidance, i.e., employees "[…] have a feeling of anxiety or fear when encountering unfamiliar risks, deviant ideas, or conflicts in their work place."[280] Participation may increase uncertainty and lead to the 'burden' that employees experience, thereby decreasing their commitment. However, the present research is conducted in Germany, i.e., a Western culture with a greater proximity towards the United States and Australia, which are all characterized by low uncertainty avoidance.[281] While any comparative study not based on national samples is vulnerable to the accusation that results are not transferable, given the greater proximity towards the United States and Australia, a positive effect of participative management on subordinates' commitment can be expected for Germany.

The third aspect concerns the fact that none of the studies is conducted in a management accounting context. As the focus of the present study relies on the use of MAI for influencing, management accounting research on employee participation is lastly reviewed. Most empirical studies deal with budgetary participation, as it is closely related and especially relevant to accounting research.[282] Furthermore, the results "[…] are applicable to participation in decision contexts other than budgeting."[283] ARGYRIS (1952) is among the first researchers to suggest that the greatest impact from budgeting occurs if subordinates can participate in the process of budget creation.[284] In a later work, ARGYRIS (1955) emphasizes that "[…] subordinates should be given an opportunity to participate in the various decisions that are made in their organization which affect them directly or indirectly."[285] Similarly, MIA (1987) argues that by means of budgetary participation, employees "[…] obtain and process additional information about their jobs […]"[286] and, in the end, better understand their jobs.

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[279] Chiu (2002), p. 879.
[280] Yamazaki (2005), p. 527; further cf. Hofstede (2005), pp. 164f.
[281] Cf. Hofstede (2005), pp. 168f.
[282] Cf. Parker/Kyj (2006), p. 32. Budgetary participation can be defined as "[…] the amount of influence and involvement that an individual employee perceives he or she has on a jointly-set budget." Mia (1989), p. 350.
[283] Murray (1990), p. 106.
[284] Cf. Argyris (1952), pp. 28f.
[285] Argyris (1955), p. 1.
[286] Mia (1987), p. 556.

Several empirical studies confirm the positive effect of budgetary participation on subordinates' commitment. QUIRIN/O'BRYAN/DONNELLY (2004), QUIRIN/DONNELLY/O'BRYAN (2000), and NOURI/PARKER (1998) find positive and significant correlations for various samples in the United States.[287] The authors argue that participation in budget creation helps subordinates to become better acquainted with and accordingly more committed to organizational targets. As shown in Table 4, all studies use the same measures for budgetary participation by MILANI (1975)[288] and subordinates' commitment by MOWDAY/STEERS/PORTER (1979)[289], which makes the results comparable. Furthermore, the studies are predominantly conducted among high-level employees so that they are also applicable to this research context.

Despite the empirical evidence, some authors challenge the argument that budgetary participation has a positive effect on subordinates' commitment. BECKER/GREEN JR. (1962) argue that budgetary participation can lead to both positive and negative effects. On the one hand, budgetary participation can help to combine the diffused knowledge among employees and to increase subordinates' commitment.[290] On the other hand, participation increases subordinates' job complexity, which can lead to a decrease in their commitment in certain environments.[291] The authors conclude that "[o]nly management itself can determine whether it is worthwhile to initiate or continue the participation segment of the budgeted cycle."[292] In a more recent survey among 280 third-level managers in a large British company, MARGINSON/OGDEN (2005) study the impact of empowerment on subordinates' budgetary commitment. Regarding the behavioral implications of budget goals, the authors argue that fixed budget goals, as compared to jointly-set budgets, may foster budgetary commitment as they "[…] can offer structure and certainty in situations of high ambiguity and uncertainty."[293] However, the authors analyze the degree to which subordinates are commit-

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[287] Cf. Table 4; further cf. Quirin/O'Bryan/Donnelly (2004), p. 155; Quirin/Donnelly/O'Bryan (2000), p. 136; Nouri/Parker (1998), p. 474.

[288] Cf. Milani (1975), pp. 276f. Milani's (1975) six-indicator measure assesses employees' perceived degree of influence and participation in a jointly-set budget.

[289] In contrast to the above studies from the field of organizational research, these studies all use the shortened nine-indicator version of the Mowday/Steers/Porter (1979) measure that omits the reverse coded indicators. Cf. Mowday/Steers/Porter (1979).

[290] Cf. Becker/Green Jr. (1962), p. 394.

[291] The authors do not specify the types of 'these environments'. Cf. Becker/Green Jr. (1962), p. 401.

[292] Becker/Green Jr. (1962), p. 401.

[293] Marginson/Ogden (2005), p. 450.

ted to meeting the budgets and do not focus on subordinates' affective commitment as does this research. Furthermore, the authors still argue that participation is a vital component to foster commitment: "[…] schemes of accountability and reward, as well as participation [i.e., in budgeting, P.H.], are generally deemed necessary in order to ensure people's commitment to the budget."[294] In sum, the reviewed management accounting research reports positive effects of budgetary participation on subordinates' commitment.

When supervisors influence subordinates by means of UEA and provide them with the opportunity to participate in the decision-making process, subordinates can clarify the path-goal requirements of particular tasks. This enables them to understand the steps that were taken to arrive at the final decision. Furthermore, this study is conducted among high-level managers, who are budget-responsible and typically better informed about their specialized activities than top-management. Involving them in decisions may result in more realistic operational targets because they can transfer their knowledge to supervisors. They will then better identify with and internalize the decisions, ultimately increasing their commitment. This line of reasoning is emphasized by the research reviewed above, which consistently finds positive effects of participative practices on subordinates' commitment. With regard to the effect of UEP on subordinates' commitment, different arguments can be made based on the literature review. On the one hand, UEP may lead to an increase of subordinates' commitment as it helps to reduce job uncertainty and complexity. Subordinates are not asked to provide input to final decisions, but simply have to carry out decisions made by high-level management. On the other hand, this research is conducted among high-level managers, whose job functions require them to cope with job uncertainty. They furthermore need to be involved in decisions based on MAI that affect their budgets and business lines.[295] Accordingly, when supervisors employ UEP to assert decisions, these managers will likely feel restrained in their ability to contribute to decision-making so that a negative impact of UEP on subordinates' commitment is proposed.

P_{1a}: UEA positively and directly influences subordinates' commitment.

P_{1b}: UEP negatively and directly influences subordinates' commitment.

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[294] Marginson/Ogden (2005), p. 450.
[295] Cf. chapter D3.2 for the final sample characteristics.

Author(s) (Year)	Country	Research Design	n (Response Rate)	Industry	Independent Variable (Measure; Cronbach's Alpha)	Dependent Variable (Measure; Cronbach's Alpha)	Coefficient and Significance
Organizational Research							
Kaufman (2003)	US	Case Study	na	Airline	Employee Involvement (na)	Organizational Commitment (na)	na
Chiu (2002)	China	Survey	300 Workers (na)	Food	Participation in Decision-Making (New Measure; na)	Organizational Commitment (Meyer/Allen (1990); 0.88)	0.04ns
Rodwell/Kienzle/Shadur (1998)	Australia	Survey	329 Employees (82.0%)	Information-Technology	Participation in Decision-Making (White/Ruh (1973); na)	Organizational Commitment (Mowday/Steers/Porter (1979); na)	0.56***
Boshoff/Mels (1995)	US	Survey	140 Sales Representatives (36.8%)	Insurance	Participation in Decision-Making (Teas/Wacker/Hughes (1979); 0.78)	Organizational Commitment (Mowday/Steers/Porter (1979); 0.91)	0.48**
Decotiis/Summers (1987)	US	Survey	367 Restaurant Managers (61.0%)	Restaurant	Participation in Decision-Making (New Measure; 0.81)	Organizational Commitment (New Measure; 0.88)	0.52**
Lincoln/Kalleberg (1985)	US; Japan	Survey	US: 4567 Employees (na); Japan: 3735 Employees (na)	Cross-Sectional	Centralization in Decision-Making (New Measure; na)	Organizational Commitment (Mowday/Steers/Porter (1979); na)	US: -0.05*; Japan: 0.05*
Zahra (1984)	US	Survey	114 Engineers and Professional Employees (52.1%)	Electronics	Participation in Decision-Making (Adapted Version of Vroom (1960); 0.79)	Organizational Commitment (Mowday/Steers/Porter (1979); 0.86)	0.36***
Rhodes/Steers (1981)	US	Survey	Company 1: na Production Employees (na); Company 2: 76 Production Employees (42.7%)	Manufacturing	Participation in Decision-Making (New Measure; 0.91)	Organizational Commitment (Mowday/Steers/Porter (1979); Company 1: 0.81; Company 2: 0.89)	Company 1: 0.28**; Company 2: 0.40***
Morris/Steers (1980)	US	Survey	262 Employees (41.0%)	Public Sector	Participation in Decision-Making (Adapted Version of Vroom (1960); 0.85)	Organizational Commitment (Mowday/Steers/Porter (1979); 0.88)	0.33*
Management Accounting Research							
Marginson/Ogden (2005)	UK	Survey	221 Third-Level Managers (81.8%)	Communication	Experience of Empowerment (New Measure; 0.72)	Budgetary Commitment (New Measure; 0.76)	0.54***
Parker/Kyi (2004)	US	Survey	70 Budget-Responsible Managers (61.4%)	Trucking; Manufacturing	Budgetary Participation (Milani (1975); 0.85)	Organizational Commitment (Mowday/Steers/Porter (1979); 0.90)	0.03ns
Quirin/O'Bryan/Donnelly (2004)	US	Survey	98 Managers (40.8%)	Cross-Sectional	Budgetary Participation (Milani (1975); 0.94)	Organizational Commitment (Mowday/Steers/Porter (1979); 0.91)	0.17*
Quirin/Donnelly/O'Bryan (2000)	US	Survey	107 Managers (44.6%)	Cross-Sectional	Budgetary Participation (Milani (1975); 0.94)	Organizational Commitment (Mowday/Steers/Porter (1979); 0.91)	0.23**
Nouri/Parker (1998)	US	Survey	135 Managers and Supervisors (66.5%)	Chemical	Budgetary Participation (Milani (1975); 0.84)	Organizational Commitment (Mowday/Steers/Porter (1979); 0.86)	0.21*
Legend: *p <= 0.05; **p <= 0.01; ***p <= 0.001; ns = non-significant; na = not applicable/available; US: United States; UK: United Kingdom							

Table 4: Review of Empirical Studies on the Relationships Between Participation in Decision- Making and Subordinates' Commitment

2.2 Proposed Relationships Between Using Management Accounting Information for Influencing and Subordinates' Performance

Several studies have examined performance implications of different types of information use for influencing. However, both conceptual and empirical studies employ performance measures related to organizational performance, arguing that the use of information by individual high-level managers can directly affect organizational performance.[296] As this study analyzes the outcomes of influence processes on the individual level of analysis, the results of these studies are not transferable. Hence, studies on participative management are again employed as an auxiliary construct to derive propositions for the effects of UEA and UEP on subordinates' performance.

A large part of leadership and management literature suggests a positive effect of decision participation on subordinates' performance. The reasoning is found in the higher "[…] reinforcing value of work performed"[297] in the participatory situation. Participation fosters a democratic environment, in which employees may express their opinions and will more likely accept technical changes and adopt innovations.[298] Put differently, employees will perform higher if they "[…] were acting out plans they had developed for themselves."[299] Despite these arguments, empirical research yields contradictory results as to whether participation directly affects subordinates' performance. In a meta-analysis including 68 studies on participative management between 1978 and 1983, COTTON ET AL. (1988) find that direct participation between supervisors and subordinates exerts a significant positive impact on subordinates' performance. They further contend that other forms of participation involving formal participation pro-

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[296] Regarding conceptual studies, Toften/Olsen (2003) and Souchon/Diamantopoulos (1996) hypothesize how different types of information use affect firm performance and export performance, respectively. Cf. Toften/Olsen (2003); Souchon/Diamantopoulos (1996). Regarding empirical studies, Sandt (2004) examines the relationship between the symbolic use of information and organizational performance, measured as quality of the leadership cycle and ability to adapt. In a survey among marketing departments in German manufacturing firms, Karlshaus (2000) examines the impact of the symbolic use of cost accounting information on marketing performance, measured as relative market share. Vandenbosch (1999) analyzes the impact of four types of information use, of which focusing attention and legitimizing decisions are related to UEA and UEP, on organizational competitiveness. Diamantopoulos/Souchon (1998) investigate the implications of the symbolic use of export information, which includes facets of UEA and UEP, on the export performance of the firm. Cf. Sandt (2004); Karlshaus (2000); Vandenbosch (1999); Diamantopoulos/Souchon (1998).

[297] Sales (1966), p. 275.

[298] Cf. Jones/Svejnar (1985), p. 451.

[299] Bass/Leavitt (1963), p. 584.

grams or indirect participation through work representatives exert different effects.[300] However, the authors employ a simple voting system only comparing the number of studies that find positive, negative, or non-significant relationships between participation and performance. Given these limitations, WAGNER III (1994) reassesses that meta-analysis and reviews two narrative and ten empirical meta-analyses on the same topic. The empirical correlations between participation and performance are positive and significant, but small in size: "[T]he average effects revealed in this article are so small as to raise questions about their *practical* significance."[301] In a conceptual article, WAGNER III (2000) similarly finds that "[c]hanging levels of participation (i.e., from direction to participation) […] explain only 1 percent of the concurrent change in performance […]."[302] KLEINGELD/VAN TUIJL/ALGERA (2004), in a quasi-experimental field study, find a positive impact of participation on job performance, reporting an effect size of 0.96.[303] The inconclusive findings may be attributed to the fact that most studies define participation differently. However, as various types of participation are shown to consistently affect subordinates' commitment positively, a "[…] more plausible explanation is that, consistent with research evidence and contrary to commonly-held beliefs, participation truly has no strong, general effects on performance […]."[304]

Similar to the above literature, management accounting research argues that budgetary participation is perceived as being fair by employees, which increases their commitment and ameliorates their performance.[305] In contrast, fixed budgets and the corresponding budget pressure lead to cognitive inconsistencies among employees, which foster stress, interpersonal distrust, and dysfunctional behavior in the form of lower job performance. Supervisors should thus involve subordinates in budget setting in order to increase their acceptance of the budgets and, ultimately, their job performance.[306] Several empirical studies by WINATA/MIA (2005), LAU/LIM (2002), NOURI/PARKER

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[300] Cf. Cotton et al. (1988), pp. 14f. These types of participation are not reviewed, as formal and indirect participation do not apply to this research context. For detailed results cf. Cotton et al. (1988). Meta-analyses merge the results of various comparative studies that attend to related research problems. The analyses may be narrative involving a structured discussion, or quantitative including a statistical analysis. Cf. Bergstrom/Taylor (2006), pp. 351f.

[301] Wagner III (1994), p. 325.

[302] Wagner III (2000), p. 306.

[303] Cf. Kleingeld/Van Tuijl/Algera (2004), p. 845.

[304] Wagner III (1994), p. 326.

[305] Cf. Lau/Lim (2002), p. 55; Murray (1990), p. 106.

[306] Cf. Argyris (1952), p. 29.

(1998), BROWNELL/MCINNES (1986), BROWNELL (1982b), and MERCHANT (1981) confirm the above reasoning and find positive correlations between these two variables for different samples and industries in the United States and Australia.[307] As shown in Table 5, the studies are based on small to medium sample sizes (40 to 139 respondents) among middle- or high-level managers. The response rates are high, ranging between 42.5 to 95.8 percent. As all studies employ the same budgetary participation measure by MILANI (1975),[308] and as three studies use the same performance measure by MAHONEY/JERDEE/CARROLL (1963),[309] results are comparable across samples. The size of the correlations is between 0.09 and 0.40, all significant on the one percent or five percent significance level. In sum, these surveys provide adequate statistical support for a positive and direct effect of budgetary participation on subordinates' performance. However, the theoretical reasoning presented does not substantiate the direct effect between budgetory participation and performance. Rather, it is argued that participation increases subordinates' commitment, which in turn leads to an increase in performance. Furthermore, other studies in management accounting report contradictory results. In a conceptual study, BECKER/GREEN JR. (1962) argue that "[…] participation can lead to either increased or decreased output"[310], depending on the type of organization and attainability of the budget goal. MILANI (1975) studies the impact of budgetary participation on foreman performance in a large manufacturing plant. Comparing monthly data over a six-month period, the author finds positive, but mostly non-significant correlations between the two variables. MILANI (1975) concludes that the "[…] findings do not offer a clear answer as to whether participation or nonparticipation should be pursued in budget setting."[311] Similarly, MIA (1989) finds a non-significant direct correlation between budgetary participation and performance in a survey among middle managers of six companies in New Zealand.[312] In sum, the empirical evidence remains inconclusive: "While it appears that an increase in participa-

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[307] Cf. Winata/Mia (2005); Lau/Lim (2002); Nouri/Parker (1998); Brownell/McInnes (1986); Brownell (1982b); Merchant (1981).

[308] Cf. Milani (1975). Furthermore, Brownell/McInnes (1986) use a second measure for budgetary participation by Hofstede (1967).

[309] As depicted in Table 5, Winata/Mia (2005) and Merchant (1981) use new developed measures. Nouri/Parker (1998) use an adapted measure of Govindarajan/Gupta (1985). Lau/Lim (2002), Brownell/McInnes (1986), and Brownell (1982b) use the Mahoney/Jerdee/Carroll (1963) measure.

[310] Becker/Green Jr. (1962), p. 401.

[311] Milani (1975), p. 283.

[312] Cf. Mia (1989), p. 352.

tion in decision-making can often improve morale, its effect on productivity is equivocal at the best, increasing it under some circumstances but possibly even decreasing it under other circumstances."[313]

When supervisors employ UEA, they enable subordinates to make inquiries and thus gain a better understanding of the related task and solution strategies, which likely leads to an increase in their performance. The reasoning is only partially supported by the cited empirical evidence. Many correlations are non-significant or small in size, and even those studies reporting significant correlations contend that participation affects an increase in commitment, which ultimately increases performance. However, "[p]articipation's effects appear to be strengthened by greater information impactedness, or conditions in which only a few individuals possess needed information […]."[314] As this is the case in the present context, UEA is proposed to positively and directly affect subordinates' performance. Furthermore, UEA is proposed to positively and indirectly affect subordinates' performance through a higher commitment. In the case of UEP, subordinates lack the possibility to participate in the decision-making process. While they are directly provided with the necessary MAI to work on the respective tasks, subordinates will not be able to obtain a clearer understanding of the related decision processes, which may lead to anxiety, stress, and lower performance. As they do not have the possibility of contributing their own operative knowledge, impractical or unrealistic decisions by top-management may lead to a decrease in their commitment and performance. UEP is thus proposed to negatively and directly affect subordinates performance. Furthermore, it is suggested to negatively and indirectly affect subordinates' performance through a lower commitment.

P_{2a}: *UEA positively and directly influences subordinates' performance.*

P_{2b}: *UEA positively and indirectly influences subordinates' performance through a higher commitment.*

P_{2c}: *UEP negatively and directly influences subordinates' performance.*

P_{2d}: *UEP negatively and indirectly influences subordinates' performance through a lower commitment.*

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[313] Hopwood (1976), p. 79.
[314] Wagner III (2000), p. 308.

Author(s) (Year)	Country	Research Design	n (Response Rate)	Industry	Independent Variable (Measure; Cronbach's Alpha)	Dependent Variable (Measure; Cronbach's Alpha)	Coefficient and Significance
Organizational Research							
Kleingeld/Van Tuijl/Algera (2004)	Nether-lands	Quasi-Experimental Field Study	182 (na)	Services	Participation in Decision-Making (na)	Job Performance (na)	na
Wagner III (1994)	na	Meta-Analysis	Reassessment of the 68 Articles by Cotton et al. (1988); 8 Meta-Analyses and 2 Narrative Reviews	na	Participation in Decision-Making (na)	Managerial Performance (na)	0.15 - 0.25na
Cotton et al. (1988)	na	Meta-Analysis	68 Published Articles (na)	na	Participation in Decision-Making (na)	Managerial Performance (na)	na
Management Accounting Research							
Winata/Mia (2005)	Australia	Survey	74 Hotel Managers (46.3%)	Services	Budgetary Participation (Milani (1975); 0.89)	Managerial Performance (New Measure; na)	0.13*
Lau/Lim (2002)	Australia	Survey	85 Functional Heads and Managers (42.5%)	Manufacturing	Budgetary Participation (Milani (1975); 0.90)	Managerial Performance (Mahoney/Jerdee/Carroll (1963/1965); na)	0.40**
Nouri/Parker (1998)	US	Survey	139 Budget-Responsible Managers (68.5%)	Chemical	Budgetary Participation (Milani (1975); 0.84)	Job Performance (Adapted Version of Govindarajan/Gupta (1985); na)	0.19**
Mia (1989)	New Zealand	Survey	62 Middle-Level Managers (66.6%)	Cross-Sectional	Budgetary Participation (Milani (1975); 0.91)	Managerial Performance (New Measure; na)	0.18ns
Brownell/McInnes (1986)	US	Survey	108 Middle-Level Managers (48.2%)	Electronics; Steel	Budgetary Participation (Milani (1975); 0.76) (Hofstede (1967); na)	Managerial Performance (Mahoney/Jerdee/Carroll (1963/1965); na)	- 0.34** (Milani 1975); - 0.24* (Hofstede 1967)
Brownell (1982b)	US	Survey	46 Middle-Level Cost Managers (95.8%)	Manufacturing	Budgetary Participation (Milani (1975); na)	Managerial Performance (Mahoney/Jerdee/Carroll (1963/1965); na)	0.09**
Merchant (1981)	US	Survey	170 Managers (84.6%)	Electronics	Influence on Budget Plans (New Measure; na)	Managerial Performance (New Measure; na)	0.48**
Milani (1975)	US	Survey	88 Foremen (67.1%)	Manufacturing	Budgetary Participation (New Measure; na)	Foremen Performance (New Measure; na)	0.05ns - 0.19*
Legend: *p <= 0.05; **p <= 0.01; ***p <= 0.001; ns = non-significant; na = not available/applicable; US: United States							

Table 5: Review of Studies on the Relationships Between Participation in Decision-Making and Subordinates' Performance

2.3 Proposed Relationship Between Subordinates' Commitment and Subordinates' Performance

A multitude of studies in the fields of organizational research and management accounting argue that organizational commitment enhances individuals' job performance. These studies theorize that committed employees are highly motivated and are consequently more loyal, enthusiastic, and productive.[315] They want their organization to be successful and will perform higher in their jobs than employees who lack such a commitment: "Given that an employee with strong affective commitment feels emotional attachment to the organization, it follows that he or she will have a greater motivation or desire to contribute meaningfully to the organization than would an employee with weak affective commitment."[316]

Organizational research has generally confirmed the theorized positive relationships (cf. Table 6). In an early meta-analysis involving 35 studies on the linkages between commitment and work outcomes, RANDALL (1990) reports that an increase in organizational commitment has a positive (albeit low) impact on job performance. The weighted average correlation, corrected for differing sample sizes, is 0.15.[317] MEYER ET AL. (2002) confirm this finding in a more recent meta-analysis involving 155 independent samples from 94 published articles, 22 dissertations, and 34 unpublished manuscripts and papers.[318] However, while the weighted average correlation is positive at 0.16, its magnitude is relatively small.[319] In addition to the reviewed studies above, a variety of studies reports positive, but non-significant correlations between the two variables. In a meta-analysis including 124 published articles, MATHIEU/ZAJAC (1990) study the antecedents, outcomes, and correlates of organizational commitment. As the confidence interval around the mean correlation between organizational commitment and job performance (0.14, non-significant) includes zero, the authors reason that "[…] commitment has relatively little direct influence on performance in most instances."[320] ANGLE/LAWSON (1994) study the impact of organizational com-

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[315] Cf. Meyer/Allen (1997), pp. 24f.
[316] Meyer/Allen (1997), p. 24.
[317] Cf. Randall (1990), p. 367.
[318] Cf. Meyer et al. (2002), p. 25.
[319] Cf. Meyer et al. (2002), p. 36.
[320] Mathieu/Zajac (1990), p. 184.

mitment on performance in a sample of 85 employees of a large Fortune 500 manufacturing company.[321] Their data yield a non-significant relationship between affective organizational commitment and supervisory ratings of overall subordinates' job performance (0.04, non-significant).[322] BECKER ET AL. (1996) also posit a non-significant correlation between organizational commitment and employee performance (0.07, non-significant), arguing that the concept of organizational commitment is too broad to explain a larger amount of the variance of employee performance.[323] In sum, organizational research consistently finds positive correlations between the two variables. However, the correlations are often small in size or non-significant.

In a management accounting context, most authors find empirical support for the positive impact of organizational commitment on job performance (cf. Table 6).[324] FERRIS/LARCKER (1983) and FERRIS (1981) conclude that a higher commitment to the organization is likely to increase auditors' job performance.[325] However, while junior auditors' performance is mainly determined by their readiness to exert extra effort, senior auditors' performance primarily depends on their commitment to the organization as extra effort is assumed in their jobs.[326] Furthermore, a lack of employees' abilities may impede a higher performance: "That is, employees might perform quite poorly, in spite of their commitment level, simply because they lacked certain necessary job-related skills."[327] More recent empirical studies by QUIRIN/O'BRYAN/DONNELLY (2004) and NOURI/PARKER (1998) also report positive correlations between the two variables for different samples in the United States.[328]

Given that the reviewed literature consistently finds positive correlations, which only vary in their magnitude and significance, a positive impact of subordinates' commitment on subordinates' performance is proposed.

P_3: Subordinates' commitment positively and directly influences subordinates' performance.

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[321] Cf. Angle/Lawson (1994), p. 1542.
[322] Cf. Angle/Lawson (1994), p. 1544.
[323] Cf. Becker et al. (1996), p. 472.
[324] Cf. Quirin/O'Bryan/Donnelly (2004); Ferris/Larcker (1983); Ferris (1981).
[325] Ferris/Larcker (1983), p. 8; Ferris (1981), p. 322.
[326] Cf. Ferris (1981), p. 324.
[327] Ferris (1981), p. 318.
[328] Cf. Quirin/O'Bryan/Donnelly (2004), p. 155; Nouri/Parker (1998), p. 474.

Author(s) (Year)	Country	Research Design	n (Response Rate)	Industry	Independent Variable (Measure; Cronbach's Alpha)	Dependent Variable (Measure; Cronbach's Alpha)	Coefficient and Significance
Organizational Research							
Meyer et al. (2002)	na	Meta-Analysis	94 Published Articles, 22 Dissertations, and 34 Unpublished Manuscripts and Papers	na	Organizational Commitment (na)	Job Performance (na)	0.16na
Becker et al. (1996)	US	Survey	281 Employees and Supervisors (31.0%)	na	Organizational Commitment (Becker (1992); 0.89)	Job Performance (New Measure; na)	0.07ns
Angle/Lawson (1994)	US	Survey	85 Employees (81.7%)	Manufacturing	Organizational Commitment (Mowday/Steers/Porter (1979); 0.90)	Job Performance (New Measure; na)	0.04ns
Randall (1990)	na	Meta-Analysis	35 Published Articles	na	Organizational Commitment (na)	Job Performance (na)	0.15na
Mathieu/Zajac (1990)	na	Meta-Analysis	124 Published Articles	na	Organizational Commitment (na)	Job Performance (na)	0.14ns
Management Accounting Research							
Quirin/O'Bryan/Donnelly (2004)	US	Survey	98 Managers (40.8%)	Cross-Sectional	Budgetary Participation (Milani (1975); 0.94)	Managerial Performance (Mahoney/Jerdee/Carroll (1963/1965); 0.86)	0.18*
Nouri/Parker (1998)	US	Survey	135 Managers and Supervisors (66.5%)	Chemical	Budgetary Participation (Milani (1975); 0.84)	Job Performance (Govindarajan/Gupta (1985); na)	0.19*
Ferris/Larcker (1983)	US	Survey	90 Auditors (73.2%)	Financial Services (Accounting)	Organizational Commitment (New Measure; na)	Job Performance (New Measure; na)	0.80*
Ferris (1981)	US	Survey	123 Junior Auditors (93.9%) 46 Senior Auditors (83.6%)	Financial Services (Accounting)	Organizational Commitment (New Measure; na)	Job Performance (New Measure; na)	Junior Auditors: 0.20*; Senior Auditors: 0.25*
Legend: *p <= 0.05; **p <= 0.01; ***p <= 0.001; ns = non-significant; na = not available/applicable; US: United States							

Table 6: Review of Studies on the Relationship Between Subordinates' Commitment and Subordinates' Performance

2.4 Summary of the Main Model Propositions

Figure 5 graphically depicts the main research model. Straight lines represent the proposed direct effects, and dotted lines represent the proposed indirect effects. The detailed main model propositions are subsequently depicted in Table 7.

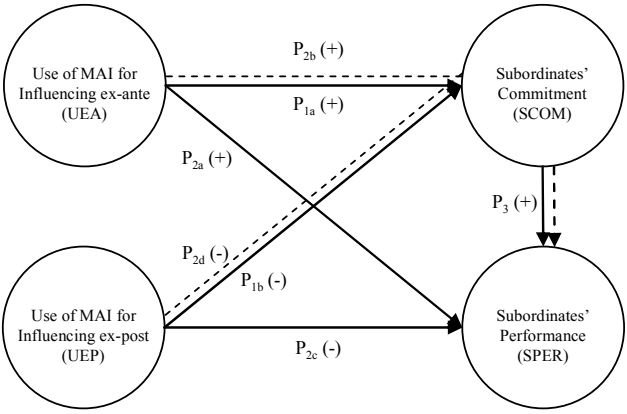

Figure 5: Main Research Model[329]

Proposed Relationships Between Using Management Accounting Information for Influencing and Subordinates' Commitment	
P_{1a}	UEA positively and directly influences subordinates' commitment.
P_{1b}	UEP negatively and directly influences subordinates' commitment.
Proposed Relationships Between Using Management Accounting Information for Influencing and Subordinates' Performance	
P_{2a}	UEA positively and directly influences subordinates' performance.
P_{2b}	UEA positively and indirectly influences subordinates' performance through a higher commitment.
P_{2c}	UEP negatively and directly influences subordinates' performance.
P_{2d}	UEP negatively and indirectly influences subordinates' performance through a higher commitment.
Proposed Relationship Between Subordinates' Commitment and Subordinates' Performance	
P_3	Subordinates' commitment positively and directly influences subordinates' performance.

Table 7: Summary of the Main Model Propositions

[329] Own compilation.

3. Moderating Model

3.1 Proposed Effects of Supervisors' Power Bases

The legitimate, information, and impersonal reward/coercive power bases are structurally determined by the organization. Yet, the degree to which subordinates follow hierarchical orders and supervisors can make use of these power bases largely depend on the structure of the organization. As described above, this research assumes that the organization has a formalized hierarchical structure. In other words, rules, processes, norms, and sanctions are standardized to a high degree and prescribe a certain behavior in the organization.[330]

The legitimate power base is conceived of as the supervisors' right to prescribe behavior for subordinates.[331] It is based on a structural relationship between the agents and the targets, which is predetermined by the organization in general and the managerial hierarchy in particular. IVANCEVICH/DONNELLY (1970) suggest that "[a]ttempts to bring about compliance […] based upon the legitimate power of the manager may not be the most optimum [sic!]."[332] However, when supervisors assign task-related responsibilities to subordinates and stay within the bounds of formal authority, they are more likely perceived as rationally following established procedures. In line with this argumentation, FRENCH JR./ISREAL/AAS (1960) undertook a field experiment involving 36 workers in a Norwegian factory, aiming to refine the COCH/FRENCH JR. (1948) experiment, which had been conducted in the United States, for a different culture.[333] It can be shown that workers respond more favorably to perceived legitimate participation than workers who have the impression that participation is not legitimate.[334]

Within these specified boundaries of the legitimate power base, subordinates can be expected to follow organizational norms and to accept the legitimacy of their supervisors' requests, even when they are not involved in the decision-making process by

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[330] Cf. Fredrickson (1986), p. 283; Hall/Johnson/Haas (1967), p. 906.
[331] Cf. Raven/Schwarzwald/Koslowsky (1998), p. 310; French Jr./Raven (1959), p. 159.
[332] Ivancevich/Donnelly (1970), p. 547.
[333] Cf. French Jr./Israel/As (1960), p. 3.
[334] Cf. French Jr./Israel/As (1960), pp. 14-17. Participation is defined as the extent to which it is considered rightful by the parties involved.

means of UEA. Accordingly, it is proposed that a high legitimate power base reduces the negative impact of UEP on subordinates' commitment, as supervisors are perceived as having the right to assign tasks. On the other hand, when supervisors employ UEA, although they do not necessarily need to convince their subordinates of the request's desirability, they will be better able to induce feelings of task-related obligation and responsibility. Accordingly, a positive moderating impact is also proposed for the relationship between UEA and subordinates' commitment.[335]

With regard to subordinates' performance, a high legitimate power base may positively moderate these relationships as long as supervisors stay within the bounds of formal authority. While subordinates might not want to or may even be afraid to freely dissent from their supervisors' suggestions, they will still try to achieve the best possible results, as their career advancement in the organization will likely depend on the goodwill and feedback of their legitimate supervisors. Therefore, a positive moderating impact of the legitimate power base on the relationships between UEA and performance and between UEP and performance is proposed.

P_{4a}: *A high legitimate power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' commitment as well as between UEP and subordinates' commitment.*

P_{4b}: *A high legitimate power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' performance as well as between UEP and subordinates' performance.*

The information power base was redefined as the supervisors' access to and control over MAI that the subordinates' do not have access to. The underlying assumptions are that access to MAI is differentially located by hierarchical position and that supervisors use this MAI unbiasedly, efficiently, and effectively for the advancement of the organization.[336] By controlling these critical resources, supervisors can then present convincing MAI to their subordinates in an attempt to gain their commitment and increase their performance: "By directly providing convincing data […] the target can be expected to change."[337] MAI will ideally help subordinates to carry out their job more

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[335] Cf. Mossholder et al. (1998), p. 537.
[336] Cf. Moorman (1995), p. 319.
[337] Raven/Schwarzwald/Koslowsky (1998), p. 323.

efficiently and effectively, and it may function as a perceived reward as they cannot access them independently on their own. In this regard, GASKI (1986) remarks: "If this information is favorably regarded or positively valued by the recipient, it would constitute a reward."[338] The indirect access to MAI through their supervisors should both motivate subordinates and enhance their ability to carry out their jobs. A positive moderating effect of the information power base on both relationships is thus proposed.

P_{5a}: A high information power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' commitment as well as between UEP and subordinates' commitment.

P_{5b}: A high information power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' performance as well as between UEP and subordinates' performance.

The impersonal reward/coercive power base was defined as the ability of the supervisors to bestow on the subordinates positive outcomes such as pay increases, promotions, or favorable work assignments, or negative outcomes such as the allocation of unpleasant tasks.[339] The organizational structure again defines the extent to which supervisors can make use of their impersonal reward/coercive power base. Nonetheless, supervisors must not only be able to deliver rewards or sanctions. Subordinates must also believe that they can and will deliver them.[340] If subordinates anticipate that their supervisors will make use of the organizational rewards or sanctions available to them, they will likely put in extra effort and try to perform at their best in order to receive the rewards and avoid the punishments. For that reason, BASS (1990) argues that supervisors, who are seen by subordinates as controlling rewards that they can allocate among the targets if desired, can be more authoritative in their influence behavior.[341] If this is the case, it can be argued that supervisors do not need to involve subordinates as much in the decision-making process by means of UEA, as they can encourage their commitment and performance by the mere promise of rewards or threats. A positive moderating effect of the impersonal reward/coercive power base is thus proposed for the relationships between UEP and the two influence outcomes. Then again, in a formal-

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[338] Gaski (1986), p. 62.
[339] Cf. Hinkin/Schriesheim (1990), pp. 225f.; French Jr./Raven (1959), pp. 156f.
[340] Cf. Shetty (1978), p. 177.
[341] Cf. Bass (1990), pp. 29f.

ized organization, supervisors will likely need to follow standardized procedures before being able to assign rewards or threats. Therefore, subordinates' beliefs that their supervisors can and will make use of their impersonal reward/coercive power bases is likely to be lower in formal than in informal organizations. Supervisors in a formal organization will still need to clarify what is expected of subordinates and what they can hope to receive in exchange for fulfilling their jobs.[342] As this can best be done by including subordinates in the decision-making process, in sum, a positive moderating effect is also proposed for the relationships between UEA and the two influence outcomes.

P_{6a}: A high impersonal reward/coercive power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' commitment as well as between UEP and subordinates' commitment.

P_{6b}: A high impersonal reward/coercive power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' performance as well as between UEP and subordinates' performance.

Up to this point, the focus has been laid on those power bases that are related specifically to supervisors' positions in the organizational hierarchy. The amount and range of the personal reward/coercive, referent, and expert power bases are in contrast more closely related to the behavioral, technical, and administrative abilities of individual actors.[343]

The personal reward/coercive power base involves relational facets such as personal praise or approval of subordinates on the one hand, and rejection or disapproval on the other hand. Again, subordinates need to anticipate that their supervisors will also make use of the personal rewards and sanctions available to them. However, in contrast to impersonal facets that can predominantly be assigned by following standardized procedures in the organization, supervisors can instantaneously make use of their personal rewards or sanctions by giving direct feedback on particular tasks or job performance.

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[342] Cf. Bass (1990), pp. 316f.

[343] Cf. Peiró/Meliá (2003), p. 19; Ivancevich/Donnelly (1970), p. 541. It can be argued that an organization may influence the agents' expert power base by sending them to seminars, for instance. However, these decisions are made by other actors in the organization. In other words, it is not the organization that determines the extent to which the agents can develop and make use of these power bases.

Independent of the informational influence strategies employed by their supervisors, subordinates will generally aim to perform high and receive appraisals rather than disapproval. As MERCHANT (1985) argues, "[f]eedback can heighten employee awareness of what is expected of them and should help stimulate performance."[344] Accordingly, direct approval or rejection can function as a powerful tool for reinforcing subordinates' commitment and performance, no matter if they participate in the decision-making process or not. Therefore, a positive moderating effect of the personal reward/coercive power base on the relationships is proposed.

P_{7a}: A high personal reward/coercive power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' commitment as well as between UEP and subordinates' commitment.

P_{7b}: A high personal reward/coercive power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' performance as well as between UEP and subordinates' performance.

The referent power base depends on the supervisors' personality and their ability to inspire subordinates. "The referent power […] has its basis in the identification of P with O. […] If O is a person toward whom P is highly attracted, P will have a desire to become closely associated with O."[345] Subordinates are often looking to simultaneously 'learn the ropes' and find a mentor in the organization. A high referent power base of their supervisors leads to loyalty and trust and satisfies their desire for structure and security.[346] "Attention and consideration from someone of higher status in the workplace may validate subordinates' won self-identity and reinforce feelings of a positive standing in relation to that person."[347] They will not only trust in the decisions communicated to them by supervisors with whom they want to identify, but will also react more positively to both informational influence strategies. In other words, subordinates will react more favorably to both UEA and UEP, as they will more likely strive to be valued by supervisors that they esteem.

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[344] Merchant (1985), p. 50.
[345] French Jr./Raven (1959), p. 161. In their research, O denotes the agent and P the target.
[346] Cf. Shetty (1978), p. 177; French Jr./Raven (1959), p. 162.
[347] Mossholder et al. (1998), p. 536.

A similar effect can be expected for subordinates' performance, as subordinates will try their best to establish rapport and prove to their supervisors that they perform well in their jobs. In an experimental setting about leadership and social power, FRENCH JR./SNYDER (1959) conclude that leaders who are highly accepted have more effective groups than those who are less accepted.[348] Accordingly, a positive moderating impact is again proposed for all relationships.

P_{8a}: A high referent power base of the supervisors will positively moderate the relationships between UEA and subordinates' commitment as well as between UEP and subordinates' commitment.

P_{8b}: A high referent power base of the supervisors will positively moderate the relationships between UEA and subordinates' performance as well as between UEP and subordinates' performance.

The expert power base is composed of supervisors' perceived professional knowledge and competence. It can be gained either directly on the job or indirectly through professional training.[349] Similar to the referent power base, the expert power base must emanate from the supervisors and cannot be delegated by a third party. Based on their perceived expertness, supervisors can try to affect subordinates' actions to their advantage. In general, it can be assumed that supervisors, who are perceived as experts in the field, will more likely be able to convince their subordinates to follow their suggestions, independent of the influence strategies they employ.

However, decision-makers disposing of a high expert power usually have the experience in the respective markets to make decisions intuitively, i.e., they cannot "[…] articulate the underlying reasoning […]"[350] for their decisions, but rather "[…] 'listen' to the body, the mind and the emotions in response to a specific question or choice to be made from alternatives."[351] This finding is based on management research indicating that knowledge from experience is a source of information in itself and builds the basis for intuitive decision-making.[352] Intuitive decisions arise from a subconscious personal knowledge base and diverge significantly from formally justified decisions

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[348] Cf. French Jr./Snyder (1959), p. 139.
[349] Cf. Dearman/Shields (2001), p. 3; Libby (1995), pp. 178f.
[350] Shoemaker/Russo (1993), p. 10; further cf. Diamantopoulos/Souchon (1996), p. 131.
[351] Parikh (1994), p. 48
[352] Cf. Schoemaker/Russo (1993), p. 10; Weiss/Bucuvalas (1977), p. 219.

based on MAI.[353] In order to facilitate decision-making processes, MAI might even be disregarded when they force the decision-maker to reevaluate previously held assumptions or beliefs.[354] Thus, the question remains whether influence strategies based on MAI still result in the desired influence outcomes if supervisors are not specifically perceived to be experts in management accounting. According to the Halo effect, a perceived 'general' expert power base may subconsciously be ascribed to other areas in which supervisors are not as well informed (such as the use of MAI).[355]

Therefore, with regard to the two uses of MAI for influencing, supervisors with a high expert power base are likely accredited the ability to better assess the quality and to make better use of MAI then managers with a low expert power base, which will ultimately increase subordinates' commitment. According to this line of reasoning, a high expert power base is proposed to positively moderate the effects of UEA and UEP on subordinates' commitment. Similarly, experts are likely to make sound decisions and communicate them effectively by providing necessary MAI to subordinates independent of the way in which they influence their subordinates so that a positive moderating effect of the expert power base on the performance relationships is also proposed.

P_{9a}: *A high expert power base of the supervisors will positively moderate the relationships between UEA and subordinates' commitment as well as between UEP and subordinates' commitment.*

P_{9b}: *A high expert power base of the supervisors will positively moderate the relationships between UEA and subordinates' performance as well as between UEP and subordinates' performance.*

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[353] Cf. Diamantopoulos/Souchon (1996), p. 131; Russo/Medvec/Meloy (1996), p. 103; Parikh (1994), p. 48.

[354] Cf. Diamantopoulos/Souchon (1996), p. 130; Zaltman (1986), p. 438.

[355] The Halo effect was originally observed by Thorndike (1920), who states that […] ratings were apparently affected by a marked tendency to think of the person in general as rather good or inferior and to color the judgments of the qualities by this general feeling." Thorndike (1920), p. 25. In other words, the Halo effect describes a cognitive bias due to which initial evaluative perceptions and judgements of another person's characteristics are subconsciously ascribed to other characteristics of that person. Cf. O'Donnell/Schultz Jr. (2005), p. 925.

3.2 Proposed Effects of Subordinates' Characteristics

One reason for the inconsistent outcomes of influence strategies in empirical studies is that "[…] different subordinates respond different to the same supervisory act."[356] Because their personalities differ, one can expect managers with similar job titles to react differently to various influence strategies.[357] In the following, propositions are advanced about how personal characteristics, i.e., job locus of control and job self-efficacy, should moderate the outcomes of the two informational influence strategies.

The internal-external work locus of control was introduced earlier as an enduring personal characteristic that embodies a distinctive facet of the individual's internal property.[358] Subordinates with an internal locus of control believe what happens to them is primarily due to their own responsibility and behavior and is under their own control. Externals feel that their destinies are subject to change, luck, or fate, and that events are dependent on external circumstances or the actions of others.[359]

Several empirical studies in psychology and management accounting have examined the moderating role of locus of control and revealed significant attitudinal differences between internals and externals.[360] In a reaction-time test, CROMWELL ET AL. (1961) find that those individuals with an internal locus of control outperform externals in conditions of self-control, whereas externals perform better in experimentally (i.e., externally) controlled conditions.[361] ELANGOVAN/XIE (1999) study the moderating impact of locus of control on the effects of supervisory power in a sample of 165 graduate students. While many of the relationships are non-significant, the results show that internals are in general less receptive to supervisory power than externals.[362] KLIMECKI/GMÜR (2005) argue that subordinates with a tendency towards an internal work locus of control are more able to cope with external pressure in a problem-solving manner.[363] In a meta-analysis on the relationships between locus of control and

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[356] Likert (1961), p. 91.
[357] Cf. Kelly (1955), pp. 74f.
[358] Cf. Walker (2001), p. 42.
[359] Cf. Klimecki/Gmür (2005), p. 234; Mitchell/Smyser/Weed (1975), pp. 623-625.
[360] Cf. Ng/Sorensen/Eby (2006) for a systematic review.
[361] Cf. Cromwell et al. (1961), p. 363.
[362] Cf. Elangovan/Xie (1999), p. 370.
[363] Cf. Klimecki/Gmür (2005), p. 234.

different work outcomes, NG/SORENSEN/EBY (2006) suggest that the "[…] internal locus was positively associated with favorable work outcomes, such as positive task and social experiences, and greater job motivation […]."[364]

In management accounting research, BROWNELL (1981) conducts two laboratory experiments to test the null hypothesis that "[t]here will be no significant interaction between budgeting participation and locus of control affecting performance."[365] The first experiment includes 46 undergraduate accounting students; the second one is done with 48 middle managers of a manufacturing company located in the United States. For both groups, the null hypothesis is rejected. BROWNELL (1981) concludes that those subjects with a high internal locus of control perform higher in the participatory situation than those with an external locus of control.[366] In contrast, when participation is low, those subjects with an external control outperform those with an internal locus of control. To validate his experimental results, BROWNELL (1982) conducts a field study among the same 48 middle-level cost managers of the second experimental group. Again, high participation for internals is more positively related to performance than for externals.[367] MIA (1987) sends a survey to 137 executives in two companies studying the relationships between budgetary decision-making, locus of control, task difficulty, and employee behavior. The author concludes that "[…] internals were more likely to participate in budgetary matters than externals. This is only speculation, however, because the path coefficient […] between locus of control and participation, and the interaction between locus of control and task difficulty affecting participation, were not significant."[368] FRUCOT/SHEARON (1991) similarly study the relationships between budgetary participation, locus of control, and managerial performance using a survey instrument in a sample of 83 Mexican managers from diverse companies.[369] The performance of managers with an internal locus of control is more positively affected by participative budgeting than the performance of managers with an external locus of control. Further, the positive performance effect is significantly stronger for high-level than for low-level managers. In a laboratory experiment with 44 under-

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[364] Cf. Ng/Sorensen/Eby (2006), p. 1057.
[365] Brownell (1981), p. 847.
[366] Cf. Brownell (1981), p. 856.
[367] Cf. Brownell (1982a), p. 773.
[368] Mia (1987), p. 556.
[369] Cf. Frucot/Shearon (1991), p. 91 and p. 94.

graduate business students, KREN (1992) examines the moderating role of locus of control on the relationship between performance-contingent incentives and participation as independent and performance as dependent variable. Locus of control significantly moderates both relationships. In line with the above studies, KREN's (1992) results point to the conclusion that an external locus of control weakens the positive performance effects of participation.[370]

In sum, both theoretical and empirical evidence suggest that subordinates with an internal locus of control have a propensity to obtain and exert personal control and perform higher in participatory situations. They see situations as manageable and have an inclination to take productive actions to resolve problems in the workplace. Accordingly, subordinates with an internal work locus of control should rather be motivated by UEA than by UEP. It is proposed that internals are generally less receptive to UEP and more receptive to UEA than externals as they are more likely to appreciate the use of information and arguments in a collective decision-making process. In contrast, subordinates with an external locus of control are proposed to be more receptive to UEP as they "[…] are happier to rely on outside sources for information […]."[371] In other words, supervisors' use of UEP is consistent with externals' view that others control tasks in their jobs.[372] Their awareness that supervisors can order and structure the work behavior by using UEP will reduce stress and increase their commitment and performance. Therefore, the following propositions are advanced:

P_{10a}: UEA will be more positively related to subordinates' commitment and performance for subordinates with an internal work locus of control than for those with an external work locus of control.

P_{10b}: UEP will be less negatively related to subordinates' commitment and performance for subordinates with an external work locus of control than for those with an internal work locus of control.

Individuals' work self-efficacy was introduced as an important motivational construct that describes individuals' beliefs in their own competences to cope with a broad range

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[370] Cf. Kren (1992), pp. 1003f.
[371] Fisher (1996), p. 366.
[372] Cf. Mitchell/Smyser/Weed (1975), pp. 623-625.

of challenging demands in their jobs.[373] According to social cognitive theory, work self-efficacy is a regulatory mechanism that occupies a central role for the attainment of an individual's commitment and performance. Highly self-efficacious subordinates can be expected to believe in their ability to cope with ambiguous and challenging situations and/or tasks, take specific actions, and ultimately produce desired outcomes.

WOOD/BANDURA (1989) argue that individuals with a high self-efficacy visualize success scenarios, which likely lead to a higher performance.[374] Empirical research also lends support to the contention that highly self-efficacious managers perform higher in their jobs. In a study on the relationship between self-efficacy and work-related performance using meta-analysis (114 studies), STAJKOVIC/LUTHANS (1998) report an average weighted correlation for the entire group of studies of 0.38 ($p \leq 0.01$).[375] In two empirical studies in the United States, WANG/NETEMEYER (2002) find a correlation coefficient of 0.75 ($p \leq 0.05$) between self-efficacy and performance, thereby supporting their hypothesis that a high self-efficacy would exert a positive influence on salespersons' performance.[376] KRISHNAN/NETEMEYER/BOLES (2002) provide evidence for an increase of performance in two samples for highly self-efficacious salespersons. The standardized path estimate from self-efficacy to salespersons' performance is 0.29 ($p \leq 0.01$) in the first sample of 91 salespersons of a cellular company, and 0.41 ($p \leq 0.01$) in the second sample of 182 real estate salespeople.[377]

Therefore, it can be expected that a high self-efficacy will positively moderate the relationships between UEA or UEP on the one side, and subordinates' commitment or performance on the other side. Conversely, low self-efficacious managers do not believe in their capabilities to exercise control over challenging demands and will consider the tasks assigned by their supervisors to be more difficult than they really are, which is why they should react even more negatively to UEP.

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[373] Cf. Stajkovic/Luthans (1998), p. 240. To recapitulate, work self-efficacy was chosen as domain-specific construct, because it describes individuals' beliefs in their abilities to perform well in their jobs. Cf. Bozeman et al. (2001), p. 489.

[374] Cf. Wood/Bandura (1989), p. 366.

[375] The weighted average correlation of 0.38 is obtained after eliminating sample size outliers and extreme cases. Cf. Stajkovic/Luthans (1998), p. 246.

[376] Cf. Wang/Netemeyer (2002), p. 222.

[377] Cf. Krishnan/Netemeyer/Boles (2002), p. 290.

P_{11a}: UEA will be more positively related to subordinates' commitment and performance for subordinates with a high work self-efficacy than for those with a low work self-efficacy.

P_{11b}: UEP will be less negatively related to subordinates' commitment and performance for subordinates with a high work self-efficacy than for those with a low work self-efficacy.

3.3 Proposed Effects of Task Difficulty

Task difficulty describes "[…] the extent to which employees perceive their tasks as analyzable and the methods of implementing their tasks as predictable."[378] An increase of task difficulty adds to the overall job complexity, increasing the need for additional information and the propensity for communication. Several empirical research studies in management accounting have examined the moderating role of task difficulty in budgetary participation. Following the above reasoning that UEA resembles a more participative and UEP a more authoritative influence behavior, these studies are used as auxiliary constructs to derive propositions.

In a survey among 76 line managers in an Australian manufacturing company, BROWNELL/HIRST (1986) predict that "[…] participation may provide the opportunity for managers to gain access to resources which can be used to buffer task performance from the unanticipated effects of others, and to introduce new and better means for addressing tasks, which, if highly uncertain, will have characteristics that change over time."[379] BROWNELL/HIRST (1986) confirm the hypothesized interactions between budgetary participation, budget emphasis, and task uncertainty, but cannot support the effects on performance. Instead, all performance relationships are non-significant.[380] In a survey of 137 executives in two companies, MIA (1987) studies the interrelationships between budgetary decision-making, locus of control, task difficulty, and employee behavior. Results indicate that an increase in task difficulty is accompanied by a lower attitude of managers towards their employers and jobs.[381] In a subsequent survey

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[378] Mia (1987), p. 548.
[379] Brownell/Hirst (1986), p. 242.
[380] Cf. Brownell/Hirst (1986), p. 242 and p. 249.
[381] Cf. Mia (1987), p. 558.

among middle managers of six companies in New Zealand, MIA (1989) analyzes how task difficulty moderates the relationships between budgetary participation and managerial performance and motivation.[382] Job performance is found to be high "[…] when the amount of participation was proportionate to the level of job difficulty […]"[383] and vice versa. In other words, participation is effective in situations of high task difficulty. Similar results are obtained by BROWNELL/DUNK (1991) in a survey of 79 managers from 46 companies. Findings suggest that in high task difficulty situations, "[…] budget participation serves as an important information exchange role […]."[384] Finally, LAU/BUCKLAND (2000) conduct a survey with 150 Norwegian managers to study the interrelationships between budget emphasis, participation, task difficulty, and performance. The authors indicate that "[…] in *low* task difficulty situations, a compatible combination of high budget emphasis and high participation is associated with higher managerial performance than an incompatible combination of low budget emphasis and high participation."[385]

Following the cited empirical evidence, there is a greater need in high task difficulty situations for supervisors to let subordinates participate in the decision-making process and to provide MAI by means of UEA in order to mitigate complexity and uncertainty. In these situations, subordinates' uncertainty about cause-effect-relationships is higher, which can be detrimental to their commitment. As WELSCH/LAVAN (1981) argue, if a job was "[…] unclear as to its expectations, […] organizational commitment will necessarily suffer since the employee is not given the opportunity to integrate himself or herself into the position or organization."[386] Further, CHENHALL/BROWNELL (1988) state that "[…] individuals who do not fully understand their duties and responsibilities […] will hesitate to make decisions and will rely on learning by trial and error."[387] This in turn may negatively affect subordinates' performance. Subordinates consequently have a greater need to acquire MAI. The use of UEA in these situations will help them to better understand their tasks and to better deal with the difficulty of the situation. As far as the participative exchange of MAI helps facilitating subordinates'

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[382] Cf. Mia (1989).
[383] Mia (1989), p. 354.
[384] Brownell/Dunk (1991), p. 702.
[385] Lau/Buckland (2000), p. 49.
[386] Welsch/LaVan (1981), pp. 1081f.
[387] Chenhall/Brownell (1988), p. 226.

job completion, the proposed positive relationships between UEA on the one hand, and subordinates' commitment and performance on the other hand, are expected to be more positive in high task difficulty situations. The respective relationships between UEP and the two influence outcomes are expected to be more negative.

On the contrary, in low task difficulty situations, supervisors can apply preset rules, policies, and regulations.[388] Supervisors' use of UEP may suffice to gain subordinates' commitment, as tasks are considered to be routine and subordinates do not need to be involved in the decision-making process to be able to successfully execute their jobs. Accordingly, in these situations, the proposed negative relationships between UEP on the one hand, and subordinates' commitment and performance on the other hand, are expected to be more positive. In contrast, the commitment and performance implications for UEA in low task difficulty situations are proposed to be lower, as subordinates are likely to perceive their participation as ineffective and superfluous.

P_{12a}: In high task difficulty situations, the relationships between UEA on the one hand, and subordinates' commitment and performance on the other hand, will be more positive.

P_{12b}: In high task difficulty situations, the relationships between UEP on the one hand, and subordinates' commitment and performance on the other hand, will be more negative.

P_{12c}: In low task difficulty situations, the relationships between UEA on the one hand, and subordinates' commitment and performance on the other hand, will be less positive.

P_{12d}: In low task difficulty situations, the relationships between UEP on the one hand, and subordinates' commitment and performance on the other hand, will be less negative.

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[388] Cf. Mia (1987), pp. 549f.; Tushman/Nadler (1978), pp. 615f.

3.4 Summary of the Moderating Model Propositions

Table 8 summarizes the propositions for the moderating effects of supervisors' power bases, subordinates' characteristics, and task difficulty.

Proposed Moderating Effects of Supervisors' Power Bases	
P_{4a}	*A high legitimate power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' commitment as well as between UEP and subordinates' commitment.*
P_{4b}	*A high legitimate power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' performance as well as between UEP and subordinates' performance.*
P_{5a}	*A high information power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' commitment as well as between UEP and subordinates' commitment.*
P_{5b}	*A high information power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' performance as well as between UEP and subordinates' performance.*
P_{6a}	*A high impersonal reward/coercive power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' commitment as well as between UEP and subordinates' commitment.*
P_{6b}	*A high impersonal reward/coercive power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' performance as well as between UEP and subordinates' performance.*
P_{7a}	*A high personal reward/coercive power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' commitment as well as between UEP and subordinates' commitment.*
P_{7b}	*A high personal reward/coercive power base of the supervisors will positively moderate the proposed relationships between UEA and subordinates' performance as well as between UEP and subordinates' performance.*
P_{8a}	*A high referent power base of the supervisors will positively moderate the relationships between UEA and subordinates' commitment as well as between UEP and subordinates' commitment.*
P_{8b}	*A high referent power base of the supervisors will positively moderate the relationships between UEA and subordinates' performance as well as between UEP and subordinates' performance.*
P_{9a}	*A high expert power base of the supervisors will positively moderate the relationships between UEA and subordinates' commitment as well as between UEP and subordinates' commitment.*
P_{9b}	*A high expert power base of the supervisors will positively moderate the relationships between UEA and subordinates' performance as well as between UEP and subordinates' performance.*

Proposed Moderating Effects of Subordinates' Characteristics	
P_{10a}	*UEA will be more positively related to subordinates' commitment and performance for subordinates with an internal work locus of control than for those with an external work locus of control.*
P_{10b}	*UEP will be less negatively related to subordinates' commitment and performance for subordinates with an external work locus of control than for those with an internal work locus of control.*
P_{11a}	*UEA will be more positively related to subordinates' commitment and performance for subordinates with a high work self-efficacy than for those with a low work self-efficacy.*
P_{11b}	*UEP will be less negatively related to subordinates' commitment and performance for subordinates with a high work self-efficacy than for those with a low work self-efficacy.*
Proposed Moderating Effects of Task Difficulty	
P_{12a}	*In high task difficulty situations, the relationships between UEA on the one hand, and subordinates' commitment and performance on the other hand, will be more positive.*
P_{12b}	*In high task difficulty situations, the relationships between UEP on the one hand, and subordinates' commitment and performance on the other hand, will be more negative.*
P_{12c}	*In low task difficulty situations, the relationships between UEA on the one hand, and subordinates' commitment and performance on the other hand, will be less positive.*
P_{12d}	*In low task difficulty situations, the relationships between UEP on the one hand, and subordinates' commitment and performance on the other hand, will be less negative.*

Table 8: Summary of the Moderating Model Propositions

D Methodological Conception

1. Design of the Research Strategy

Data collection in the field is indispensable to the progress of management accounting research.[389] There exists a variety of research methods and procedures to initially approach the present research problems and subsequently collect, analyze, and interpret the empirical data. According to CRESWELL (2003), for designing a research strategy, three interrelated framework elements need to be considered that lead to a research design, which tends to be more quantitative or qualitative in nature:

- The assumptions about knowledge claims made by the researcher, i.e., what will be learned during the research and how will that be achieved?
- The strategies of inquiry, i.e., the general research procedures employed.
- The concrete methods for data collection, analysis, and interpretation.[390]

In the following, this framework will be employed to design a strategy for the present research.

1.1 Assumptions about Knowledge Claims

The first step in designing the research strategy relates to the knowledge claims made by the researcher, i.e., what is to be learned and how is this achieved? These claims can be referred to as research paradigms, defined as basic sets of beliefs or worldviews that guide action.[391] From a philosophical stance, these paradigms at least include three elements: ontology, epistemology, and methodology.[392] Ontology refers to the subject

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[389] Cf. Modell (2005), p. 231; Kaplan (1986), p. 429.
[390] In the following cf. Creswell (2003), pp. 3-21.
[391] Cf. Patton (1997), p. 267.
[392] Cf. Denzin/Lincoln (2005), p. 183. The authors further include axiology, which asks: "How will I be as a moral person in the world?" Denzin/Lincoln (2005), p. 183. As this aspect does not refer to the actual research problem, it will not be included in the subsequent analysis.

of existence, i.e., it concerns questions about the nature of reality. Epistemology includes questions on how the researcher understands the world and how the generated knowledge is communicated to others.[393] Ontology and epistemological claims subsequently determine the methodology, asking how knowledge can be generated. In other words, methodology is the basis for the selection of methods for data gathering, their sequence, and the research sample.[394]

Although the boundaries between different paradigms have become indistinct,[395] following DENZIN/LINCOLN (2005) and CRESWELL (2003), five key paradigms can be distinguished: participatory approach, social constructivism, positivism, postpositivism, and pragmatism.[396] The main elements of each school of thought are briefly presented below in order to categorize the present research's knowledge claims.[397]

The participatory approach attempts to reform the life of participants and/or the institutions for which they work. It starts with an important issue or agenda and subsequently involves the participants in the data collection, analysis, and interpretation. The intent, then, is to create a political debate about the issues at hand in order to enable and foster change.[398] The approach is emancipatory, as participants shall be given the opportunity to liberate themselves from restraints and irrational structures. However, the present research builds on theories and empirical findings from social and organizational psychology and management accounting research and does not generate knowledge primarily through an interactive process with study participants.

In social constructivism, knowledge and meaning are constructed through an interactive process between individuals and their social context as well as their subjective interpretation of the world, which is further affected by societal, historical, and cultural norms.[399] Rather than selecting a number of variables to be studied, the researcher is

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[393] Cf. Denzin/Lincoln (2005), p. 21.
[394] The methodology will be discussed in chapter D1.3.
[395] Cf. Denzin/Lincoln (2005), pp. 183f.
[396] Of the five cited paradigms, Denzin/Lincoln (2005) argue that the first four, i.e., positivism, postpositivism, social constructivism, and the participatory approach, structure qualitative research today. In contrast, Creswell (2003) distinguishes the latter four schools of thought, thereby excluding positivism. Cf. Denzin/Lincoln (2005), p. 183; Creswell (2003), p. 6.
[397] The descriptions are not claimed to be collectively exhaustive. More detailed descriptions of the major research paradigms can be found in Denzin/Lincoln (2005), part II.
[398] For a detailed review cf. Kemmis/Wilkinson (1998).
[399] Cf. Creswell (2003), p. 8.

interested in the whole complexity of views and then inductively generates meaning through the empirically collected data. As this research deductively develops propositions to be tested based on existing theories from various fields, it does not create knowledge following a social constructivist perspective.

In positivism, originally theorized and structured by AUGUSTE COMTE, researchers believe that the keys to the conduct of social science are "[…] objectivity, distance, and control."[400] It generally prescribes that a statement only takes meaning when "[…] it is capable of empirical verification, and its meaning is the mode of its verification."[401] Hence, science is seen as a product of predominantly numerical sets of statements that must be amenable to empirical testing. Verified hypotheses, established as facts or laws, build the nature of knowledge.[402] The aims of inquiry are explanation as well as prediction and control. Accordingly, the world is perceived as commensurable and scientific results are detached from the personalities and social positions of the researchers. While the present research proposes causal relationships between non-observable latent variables (LVs) that require commensurable data to be tested, the research model outlined above explicitly follows a behavioral approach that studies individuals' behavior in an organizational environment. Thus, a 'pure' positivist notion cannot be adopted.

Postpositivism challenges the positivist notion of absolute truth, arguing that there is no certainty about knowledge claims when studying actions and/or behaviors of individuals.[403] In other words, knowledge is conjectural, and empirical findings are always challengeable. Knowledge from a postpositivist perspective is gained through careful, objective observation and measurement of the 'real' world. The objective is to understand how different elements relate to each other by identifying relationships between causes and effects. Quantitative 'hard' evidence for the study of individuals' behavior and actions thus becomes the dominant research objective. Due the present research's exploratory nature and the fact that there exists no empirical evidence on the moderating role of supervisors' power bases on the relationship between informational influence strategies and influence outcomes, this study follows a postpositivist "[…] proc-

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[400] Greenwood/Levin (2000), p. 92.
[401] Kaplan (1964), p. 36.
[402] Cf. Smith (2003), p. 5.
[403] Here and in the following cf. Creswell (2003), pp. 7f.

ess of making claims and then refining or abandoning some of them for other claims more strongly warranted."[404] This research more specifically follows postpositivists' (1) determinism, as selected antecedent variables are suggested to effect outcomes, and (2) reductionism, as theories of social influence and power are condensed to a discrete set of constructs to be tested. In view of that, this research is foremost postpositivist in nature.

Finally, in pragmatism, knowledge is gained through actions or situations rather than through ex-ante formulated conditions.[405] In contrast to positivism, pragmatism does not aim to establish the truth of a statement, but instead aims to answer the question "[…] what difference would it make to us if the statement were true?"[406] Pragmatists employ a variety of research methods to meet their needs and intentions while not focusing on the methods employed, but on the actual research problem. Accordingly, pragmatists believe that empirical research always has to be considered in light of an actual political, social, or cultural context, because of which empirical findings are always of temporary nature. The focus on actions rather than ex-ante formulated hypotheses obviously contradicts the approach of the present research. However, in as much as the research questions determine the methodology employed and as the researcher has the freedom of choice among the methods employed, this research can further be characterized as pragmatist to a certain extent.

Recapitulating from the above analysis, the present research can be classified as postpositivist in nature because rational considerations and empirical evidence are predominantly supposed to generate knowledge. More specifically, this research builds on research from social and organizational psychology and management accounting, preselects antecedent variables, deducts propositions, and ultimately aims to test the proposed relationships with empirical data to shape knowledge. Nevertheless, this research also follows pragmatism, as it is "[…] not committed to any one system of phi-

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[404] Creswell (2003), p. 7.

[405] Cf. Cherryholmes (1992), p. 13. One of the first descriptions of pragmatism appears in 1905 by Peirce: "The word pragmatism was invented to express a certain maxim of logic. […] The maxim is intended to furnish a method for the analysis of concepts. […] The method prescribed in the maxim is to trace out in the imagination the conceivable practical consequences – that is, the consequences for deliberate, self-controlled conduct – of the affirmation or denial of the concept." Peirce (1905), p. 494.

[406] Kaplan (1964), p. 42.

losophy and reality"[407] and aims to select the strategies and methods for inquiry according to the research questions.

1.2 Strategies of Inquiry

The second step in designing the research strategy regards the strategies of inquiry, which are also referred to as general research methods.[408] They influence the choice of appropriate methods for data collection and analysis. In order to choose the most suitable research methods for investigating the aforementioned research questions, an overview is provided below of the research methods that are generally distinguished in the social sciences: quantitative, qualitative, and mixed strategies of inquiry.

Quantitative strategies of inquiry generate knowledge through numerical, quantitative sets of data about a sample from a larger population, with the intent of generalizing the research claims to the population under study.[409] The main objective is to develop and test theories and hypotheses pertaining to the research problem, whereby the measurement process provides the fundamental link between the empirical observations and the statistical expression of the relationships. Accordingly, quantitative strategies of inquiry are generally associated with a positivist or postpositivist knowledge claim.[410] They encompass experimental and non-experimental designs such as surveys.[411]

- Experimental designs distinguish true experiments and quasi-experiments. In true experiments, "[…] the researcher manipulates one or more variables with subjects who are assigned randomly to various groups."[412] In quasi-experiments, subjects are non-randomly assigned to different groups. These groups are then provided with different treatment conditions, i.e., the researcher manipulates one or more variables. Usually, a control group is used that does not receive such treatments. Experiments guarantee high internal validity as the researcher can isolate research

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[407] Creswell (2003), p. 12.
[408] Cf. Mertens (1998).
[409] Cf. Creswell (2003), p. 153; Kaplan/Duchon (1988), p. 572.
[410] Cf. Kaplan/Duchon (1988), p. 572.
[411] Cf. Creswell (2003), p. 14.
[412] Smith (2003), p. 100.

variables, thereby eliminating other explanatory factors.[413] On the downside, they are usually conducted in a laboratory, which challenges their external validity.[414]

- Non-experimental designs include all measurement procedures that involve asking identical questions of respondents, typically by means of questionnaires. Questionnaires do usually not involve direct face-to-face contact between researcher and respondent. They are conducted via traditional mail, email, telephone, fax, or Internet and they typically include open or closed questions with predefined answer categories.[415] According to BIRNBERG/SHIELDS/YOUNG (1990), questionnaires can be used for "[…] (1) assessing trends in practice; (2) systematically collecting a large amount of data within a single firm; (3) supplementing data from case and field studies; and (4) testing theories cross-sectionally using a large sample of firms or individuals."[416] While they allow generating large sample sizes in a comparatively short time and thereby optimize external validity, questionnaires do not allow establishing causality in an experimental sense.

Therefore, the main advantages of the quantitative strategies of inquiry are their objectivity, their ability to test hypothesized relationships in a larger sample, and to draw conclusions inductively for the respective population. Their disadvantages include the lack of direct contact between the researcher and the respondent and the lack of possible in-depth analyses as compared to qualitative strategies of inquiry.

Qualitative strategies of inquiry generate knowledge through descriptions. They are typically enacted in natural or real-life settings and enable the researchers to develop "[…] meanings from the data through an iterative process that starts by developing an initial understanding of the perspectives of those being studied. That understanding is than tested and modified through cycles of additional data collection and analysis until

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[413] Cf. Smith (2003), p. 100; Birnberg/Shields/Young (1990), p. 35. Internal validity describes "[…] the credibility of the causal relationships between independent and dependent variables inferred from data." Modell (2005), p. 236.

[414] Cf. Smith (2003), p. 103. External validity describes the degree to which the empirical findings of a specific research study can be generalized for different populations and contexts. Cf. Modell (2005), p. 234.

[415] Each of these data gathering methods has its own advantages and disadvantages. A more detailed description about the possibilities and drawbacks of conducting survey research is provided by Smith (2003), pp. 117-120.

[416] Birnberg/Shields/Young (1990), p. 38.

coherent interpretation is reached."[417] Therefore, qualitative strategies of inquiry are typically associated with a participatory or constructivist knowledge claim and are generally based on narratives involving ethnographies or case studies.

- In ethnographies, the researcher "[…] studies an intact cultural group in a natural setting over a prolonged period of time by collecting, primarily, observational data."[418] 'Classic' ethnographies, typically conducted in the field of anthropology, involve continuous and diverse observations in unfamiliar physical and social environments to the researcher. Younger ethnographical research in fields such as psychology or education is also conducted in research sites where "[…] the researcher […] has already spent some time and is acquainted with "local" linguistic, social, or institutional histories and practices."[419] In both cases, the researcher needs to familiarize himself or herself with and engage in the participants' communities, their daily routines, practices, and problems. This contextual development of the research allows to capture "[…] unanticipated nuances and variations of human interaction"[420] and to flexibly revise or reject preliminary research questions.[421] On the downside, ethnographies are possibly biased due to subjective interpretations of the researcher and the narrowness of the observed situations.

- A case study can be defined as "[…] an empirical enquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident."[422] Case studies allow in-depth analyses of the research questions through a variety of data collection procedures such as document analyses, archival data collection, and open-ended interviews. The direct contact and interaction with respondents provides a much deeper understanding of the research questions, because it is possible to challenge the arguments of the interviewee and to comprehend their behavior by discussing specific examples of the actions that are taken into consideration in situations relevant to the research question.[423] On the downside, case studies are typically associ-

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[417] Kaplan/Duchon (1988), p. 573.
[418] Creswell (2003), p. 14.
[419] Miller/Hengst/Wang (2003), p. 223.
[420] Miller/Hengst/Wang (2003), p. 224.
[421] Cf. Creswell (2003), p. 14.
[422] Yin (2003), p. 13; further cf. Schäffer/Brettel (2005), p. 43.
[423] Cf. Creswell (2003), p. 181.

ated with small sample sizes and consequently prevent the researcher from making inductions, i.e., they do not allow extrapolating the findings to a broader population. The analysis may further be flawed by subjective interpretations.

In sum, qualitative strategies of inquiry emphasize "[…] an interpretative approach that uses data to both pose and resolve research questions."[424] They allow gaining a much deeper understanding of the research questions than quantitative research methods and are especially well suited for exploratory research contexts. However, they lack external validity and thus do not allow making inductions.

Mixed strategies of inquiry combine qualitative with quantitative methods with the intent to eliminate the biases inherent in using only a single method.[425] Therefore, they are typically associated with a pragmatist knowledge claim. While various combinations of quantitative and qualitative methods are conceivable, mixed strategies can generally be implemented concurrently or sequentially.[426]

- Concurrent procedures involve data collection from quantitative and qualitative strategies of inquiry at the same point in time. In other words, the data are collected simultaneously and subsequently integrated into the overall analysis and interpretation of the results. There is no priority given to either qualitative or quantitative methods.

- Sequential procedures imply that quantitative and qualitative data are collected in phases, whereby the exact sequence depends on the intent of the research. In cases where quantitative data are collected first, the intent is to test a theory, which is subsequently substantiated with qualitative methods. The priority is with the quantitative methods. In contrast, when qualitative data are collected first, the intent is to explore the research question in detail with the study participants and to subsequently test these findings in a larger population with quantitative methods. The priority is hereby given to the qualitative methods.

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[424] Kaplan/Duchon (1988), p. 573.
[425] Cf. Creswell (2003), p. 15. Mixed strategies of inquiry have further been labeled multimethod or combined strategies of inquiry. Cf. Birnberg/Shields/Young (1990), p. 33.
[426] Here and in the following cf. Creswell (2003), pp. 210-213.

This research analyzes causal relationships between selected LVs, which are not directly observable.[427] It employs research from social and organizational psychology and management accounting to deduct propositions, and aims to test the proposed causal relationships with quantifiable data to generate knowledge. Accordingly, quantitative strategies of inquiry are initially appropriate to answer these research questions.

Among the quantitative strategies of inquiry, it has been argued that experimental designs are advantageous for establishing causality by isolating research conditions. However, this research aims to study managers in their natural settings and "[…] the mere fact that subjects are placed in a laboratory setting may create an effect resulting in an outcome which would not have arisen outside the experimental setting."[428] Questionnaires allow asking questions to managers in their natural settings, i.e., the organization, and they can be constructed in a way to optimize external validity and simultaneously minimize the threats of low internal validity. Accordingly, a questionnaire is chosen as primary data collection method. Moreover, as argued above, data collection for this research ideally involves one large company with respondents on similar hierarchy levels to ensure that they have similar access rights to formal management accounting systems. However, a field study in one company is always limited in its ability to make inductions and the findings must be discussed in light of the industry context. In the present research context, where "[…] the boundaries between phenomenon and context are not clearly evident […]"[429], qualitative research methods allow to challenge preconceived propositions by providing in-depth analysis of the questionnaire findings and challenging the conclusions drawn from the results.[430] Accordingly, interviews are used to substantiate the questionnaire findings.

Following these thoughts, this research employs a sequential multimethod strategy, thereby taking into account BIRNBERG/SHIELDS/YOUNG's (1990) advice that "[…] since no research method dominates the other on all criteria, multiple research meth-

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[427] Cf. chapter D1.3.
[428] Smith (2003), p. 103.
[429] Yin (2003), p. 13.
[430] Cf. Mayring (2001), p. 10.

ods should be used to investigate management accounting phenomena."[431] Specifically, as depicted in Figure 6, document analyses as well as interviews with managers of the involved corporation and industry experts will be conducted during research phase one, which will allow tailoring the questionnaire to the company under study. The questionnaire itself in phase two will be conducted to analyze and answer the causal research questions. Given the lack of empirical findings and the focus on one company in a certain industry, subsequent interviews with managers will help to better understand and substantiate (unexpected) questionnaire findings.[432]

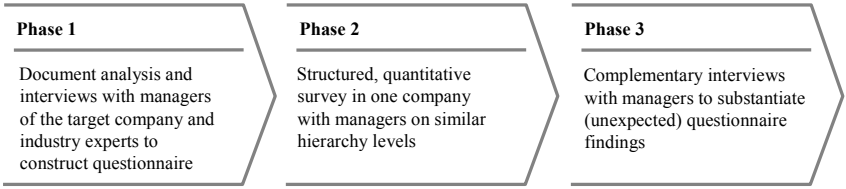

Figure 6: Phases of the Research Strategy[433]

1.3 Research Method

The final step in designing a research strategy relates to the research methods, i.e., "[…] the best means for acquiring knowledge about the world."[434] In other words, the methods for data analysis and interpretation are specified.

This research aims to analyze cause-effect-relationships, i.e., it assesses hypothesized causal relationships between LVs. LVs or constructs are ideas that cannot be directly measured, but are instead operationalized with directly measurable indicators.[435] For testing and analyzing causal models, empirical research methods such as SEM or

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[431] Birnberg/Shields/Young (1990), p. 33. Various researchers have recently made similar calls to combine quantitative with qualitative research. Cf. Modell (2005), pp. 233f.; Mayring (2001), pp. 10f.

[432] Cf. Morse (1991), pp. 121f.

[433] Own compilation.

[434] Denzin/Lincoln (2005), p. 183.

[435] In this dissertation, the terms construct(s) and LV(s) as well as indicators and items are used synonymously.

causal modeling have been developed.[436] They allow to statistically analyze causality, "[…] was im strengen wissenschaftstheoretischen Sinn nur mittels [...] kontrollierter Experimente möglich ist."[437]

SEM is a second-generation confirmatory statistical method that combines elements of multivariate regression and factor analysis.[438] SEM can thus be employed for "[…] representing, estimating, and testing a theoretical network of (mostly) linear relationships between variables, where those variables may be either observable or directly unobservable, and may only be measured imperfectly."[439] In comparison to first-generation methods such as multivariate regression, SEM specifically provides the following advantages:[440]

- The ability to simultaneously model complex causal relationships between multiple independent and dependent constructs;
- The ability to construct non-observable LVs;
- The ability to explicitly model measurement error;
- The ability to test "[…] a priori substantive/theoretical and measurement assumptions against empirical data (i.e., confirmatory analysis) […]"[441];
- The ability to include potential correlations between independent LVs.[442]

Given these advantages and the fact that SEM provides the researcher with a higher flexibility for the integration of theory and empirical data, SEM is the preferred research method.

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[436] Cf. Bollen (1989), p. 4 and the literature cited there.
[437] Homburg/Hildebrandt (1998), p. 17.
[438] SEM is generally seen as an extension of first-generation methods such as multivariate regression or factor analysis. Loosening some of the more stringent assumptions and constraints of SEM would lead to a first generation method. Cf. Chin/Newsted (1999), p. 308.
[439] Rigdon (1998), p. 251.
[440] Cf. Chin (1998b), p. 297.
[441] Chin/Newsted (1999), p. 308.
[442] In contrast to SEM, regression analysis assumes that all independent variables are uncorrelated. If such dependencies are evident in the empirical data, the estimators of the regression parameters are generally distorted (problem of multicollinearity). Cf. Backhaus et al. (2006), pp. 89-92.

To summarize, the present research is considered postpositivist in nature and follows a sequential multimethod strategy that combines quantitative with qualitative research strategies. The focus, though, is on the quantitative data collection and analysis. The empirical data will be analyzed using SEM techniques. The choice of a concrete SEM method to analyze the quantitative data depends on various factors including the way in which the LVs are operationalized and the final sample characteristics. Accordingly, the operationalization of the research model and the final sample characteristics are described below, before a concrete SEM approach is selected.

2. Operationalization of the Research Model

The first step in construct measurement regards the conceptualization of the construct's relevant dimensions. In a subsequent step, they are operationalized by either one ('one-indicator measure') or several ('multiple indicator measure') manifest indicators that are formally related to the LV. The indicators can either be determined by the LV (reflective measurement model) or represent underlying facets of and thus jointly determine the LV (formative measurement model).[443] In general, multiple indicators are preferred for the analysis of complex LVs, as reliability increases by the number and the quality of the indicators.[444] "However, an increase in the number of scale indicators can lead to participant fatigue, boredom, and inattention, which, in turn, can lead to inappropriate response behavior."[445]

When available, this research employs existing measures that proved to be reliable and valid in prior studies. For all English constructs, a standard translation-back-translation procedure was used.[446] Discrepancies in the wording of the original and back-translated indicators were initially solved by a discussion with the bilingual translators and academic colleagues. However, the subsequent pretest revealed that some of the translated indicators were either incomprehensible or misleading in a way because re-

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[443] Cf. chapter D4.1 for the differences between reflective and formative measurement models; further cf. Ittner/Larcker/Randall (2003), pp. 200-202.

[444] Cf. Churchill Jr./Iacobucci (2005), p. 283; Bagozzi (1994), p. 331; Carmines/Zeller (1979), p. 26; Churchill Jr. (1979), p. 66.

[445] Drolet/Morrison (2001), p. 198.

[446] "Back-translation is typically used to verify semantic equivalence (SE) of a translated measure to the original scale." Mallinckrodt/Wang (2004), p. 368; further cf. Brislin (1980) on the details for conducting translation-back-translation procedures.

spondents did not know how to answer to some of the questions. Accordingly, some of the German translations deviate slightly from the original constructs.

All but one indicator (SPER2) are measured with closed questions on a seven-point Likert scale.[447] The Likert scale is considered advantageous as it provides anchors for the answer categories. An uneven number of answer categories was chosen as it provides a neutral answer category and thus helps to prevent response error from respondents, who might otherwise be forced to make a possibly non-existent preference. This in turn might prevent them from not answering the questions at all.[448] A seven-point Likert scale is chosen over the five-point Likert scale as it increases the variability of the answers, and respondents in the pretest also indicated a preference for the seven-point Likert scale.[449] In the following, the operationalization of each LV is described in detail.

2.1 Main Model

Use of MAI for Influencing ex-ante (UEA)

UEA describes the extent to which the agents use MAI to influence a collective decision-making process with the targets in order to realize their purposes. The indicators for UEA are adapted from STEINERS' (2005) operationalization, who asked chief executive officers (CEOs) about the degree to which they use MAI to influence a collective decision-making process.[450] To avoid a self-report bias, UEA is operationalized from the point of view of the targets of influence. Each construct consists of four indicators asking subordinates to assess the degree to which their supervisors use MAI to influence them in a collective decision-making process. Each indicator is cast on a seven-point Likert scale ranging from 1 = 'strongly disagree' to 7 = 'strongly agree'.

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[447] As shown below, the second indicator measuring subordinates' performance (SPER2) in the original version only provides five possible answer categories.

[448] On the downside, the raw score on a variable only takes meaning when compared to some standard. For example, from a mean value of five on a seven-point Likert scale, one cannot infer that the value is high or low. Cf. Churchill Jr./Iacobucci (2005), p. 276.

[449] In the pretest, respondents were provided with two versions of the questionnaires, one including a five-point Likert scale, and the other including a seven-point Likert scale. Respondents were then asked to state their preference.

[450] Cf. Steiners (2005), pp. 102f.

All indicators should simultaneously be ranked high or low depending on the supervisors assessed, which is why a reflective measurement approach is chosen.

Indicators of the Construct 'Use of MAI for Influencing ex-ante'	
UEA1.	Wenn mein Vorgesetzter für eine gemeinsame Entscheidung meine Zustimmung benötigt, nutzt er Controllinginformationen, um mich von seiner Meinung zu überzeugen. (PT: When my supervisor needs my accordance for a joint decision, he uses MAI to convince me of his opinion.)
UEA2.	Bei gemeinsamen Entscheidungen führt mein Vorgesetzter regelmäßig Controllinginformationen an, die seine Meinung eindeutig unterstützen. (PT: In joint decisions, my supervisor uses MAI that clearly supports his opinion.)
UEA3.	Ich habe regelmäßig das Gefühl, dass mir mein Vorgesetzter bei gemeinsamen Entscheidungen nur solche Controllinginformationen präsentiert, die mich von seiner Meinung überzeugen sollen. (PT: In joint decision-making processes, I regularly get the impression that my supervisor only presents MAI that shall convince me of his opinion.)
UEA4.	In gemeinsamen Entscheidungsprozessen setzt mein Vorgesetzter nicht seine hierarchische Position, sondern Controllinginformationen ein, um mich von seiner Meinung zu überzeugen. (PT: In joint decision-making processes, my supervisor does not rely on his hierarchical position, but uses MAI to convince me of his opinion.)
(PT): Proposed translations for future research. These translations are not validated.	

Table 9: Operationalization of the Construct 'Use of MAI for Influencing ex-ante'

Use of MAI for Influencing ex-post (UEP)

UEP occurs when the agents use MAI to assert a previously made decision over the targets. The agents thus try to gain compliance for their decisions, with the difference to UEA that the targets are not involved in the decision-making process. Again, the construct is adapted from STEINERS' (2005) operationalization, who asked CEOs about the degree to which they use MAI to assert a decision previously made.[451] While STEINERS (2005) operationalized UEP from the point of view of the actual user of the information, this research defines the construct from the point of view of the targets of influence, asking them to assess the degree to which their supervisors use MAI to assert previously made decisions. The four indicators are measured on a seven-point

[451] Cf. Steiners (2005), pp. 102f.

Likert scale ranging from 1 = 'strongly disagree' to 7 = 'strongly agree'. Again, all indicators should simultaneously be ranked high or low depending on the supervisors assessed, which is why a reflective measurement approach is chosen.

Indicators of the Construct 'Use of MAI for Influencing ex-post'	
UEP1.	Mein Vorgesetzter führt regelmäßig Controllinginformationen an, damit ich bereits getroffene Entscheidungen eher akzeptiere. (PT: My supervisor regularly uses management accounting information so that I will rather accept his previously made decisions.)
UEP2.	Für die Begründung seiner bereits getroffenen Entscheidungen benutzt mein Vorgesetzter regelmäßig Controllinginformationen. (PT: For substantiating his previously made decisions, my supervisor regularly uses management accounting information.)
UEP3.	Mein Vorgesetzter nutzt Controllinginformationen, um mir seine bereits getroffenen Entscheidungen zu kommunizieren und so mein Engagement zu erhöhen. (PT: My supervisor uses management accounting information to communicate his already made decisions in an attempt to increase my dedication.)
UEP4.	Wenn mir mein Vorgesetzter Anweisungen erteilt, erläutert er mir diese mit Controllinginformationen. (PT: When my supervisor gives me orders, he explains them with management accounting information.)
(PT): Proposed translations for future research. These translations are not validated.	

Table 10: Operationalization of the Construct 'Use of MAI for Influencing ex-post'

Subordinates' Commitment (SCOM)

Subordinates' commitment measures subordinates' self-reported identification and involvement with the organization. The construct is measured by the reflective nine-indicator measure of MOWDAY/STEERS/PORTER (1979), a shortened version of the MOWDAY/STEERS/PORTER (1979) 15-indicator measure that omits the reverse coded indicators.[452] The shortened version is chosen because of the pretest results, which indicated that the reverse coded indicators are not reliable.

The construct measures the attitudinal component of commitment, i.e., subordinates are asked about their self-reported identification and involvement with the organization. After the pretest, the indicator "I really care for the fate of this organization." was deleted due to a lack of content and indicator reliability, leaving eight final indicators.

[452] Cf. Sager (1994), pp. 78f.; Mowday/Steers/Porter (1979).

The final construct consists of eight indicators, each cast on a seven-point Likert scale with the end points labeled ‘strongly disagree’ and ‘strongly agree’.

Indicators of the Construct ‘Subordinates’ Commitment’	
SCOM1.	Meinen Freunden gegenüber preise ich diese Organisation als sehr guten Arbeitgeber an. (I talk up this organization to my friends as a great organization to work for.)
SCOM2.	Ich wäre bereit, Abstriche in meinen bevorzugten Tätigkeiten zu akzeptieren, um weiter für diese Organisation arbeiten zu können. (I would accept almost any kind of job assignment in order to keep working for this organization.)
SCOM3.	Ich finde, dass meine Werte den Werten dieser Organisation sehr ähnlich sind. (I find that my values and the organization’s values are very similar.)
SCOM4.	Ich bin stolz darauf, anderen erzählen zu können, dass ich für diese Organisation arbeite. (I am proud to tell others that I am part of this organization.)
SCOM5.	Diese Organisation begeistert mich und spornt mich zu einer höheren Arbeitsleistung an. (This organization really inspires the very best in me in the way of job performance.)
SCOM6.	Ich bin sehr froh, dass ich mich entschieden habe, für diese, und nicht für eine andere Organisation zu arbeiten. (I am extremely glad that I chose this organization to work for over others I was considering at the time I joined.)
SCOM7.	Ich bin dieser Organisation sehr verbunden. (I really care for the fate of this organization.)
SCOM8.	Für mich ist diese Organisation der bestmögliche Arbeitgeber. (For me, this is the best of all possible organizations for which to work.)
(Original English indicators). Differences in the German translations are based on the feedback of the pretest.	

Table 11: Operationalization of the Construct ‘Subordinates’ Commitment’

Subordinates’ Performance (SPER)

Subordinates’ performance on the job was earlier defined as “[…] the outcome of an individual manager’s effort; it takes different forms under different circumstances and for different purposes.”[453] In cases of manual or lower management labor that is characterized by routine work, the construct may be measured objectively, for example, as the number of units produced. This research asks supervisors on the second and third hierarchy level, whose work is generally more complex and not routine. Accordingly, a subjective measurement for job performance seems most appropriate. Among sub-

[453] Winata/Mia (2005), p. 29; further cf. chapter B1.1.3.

jective measures, either self-assessed or supervisors' ratings exist.[454] Some authors challenge the use of self-rated performance measures. However, self-ratings help to overcome the social desirability bias discussed above. Further, evidence suggests that subordinates' self-assessments significantly correlate with both objective and supervisors' subjective assessments.[455] After a discussion of the advantages and disadvantages of the two, BROWNELL (1979) concludes that "[…] when compared to self-rating of performance, supervisor's rating fell far short on many desirable aspects."[456]

For this research, following the above argumentation, the two-indicator VIATOR (2001) measure is used, which asks subordinates to self-assess their job performance.[457] The instrument includes one relative and one absolute performance indicator adapted from constructs originally employed by KALBERS/FOGARTY (1995) and GREGSON/WENDELL/AONO (1994).[458] While the first indicator is cast on a seven-point Likert scale, the second indicator is measured on a five-point Likert scale as in the original. For the analysis, both are transformed to a zero to one scale, in which a value of one implies the highest performance.[459] As respondents can be expected to perform equally high or low in both dimensions, the instrument is deemed reflective in nature.

Indicators of the Construct 'Subordinates' Performance'	
SPER1.	Im Vergleich zu anderen Personen meiner Hierarchieebene würde ich meine Chancen auf eine Beförderung als hoch einstufen. (Relative to other persons at my level, I would rate my chances of promotion very high.)
SPER2.	Bitte kreuzen Sie eine Antwort an: Meine derzeitigen Leistungsbeurteilungen liegen in den a) Top 5%, b) Top 10%, c) Top 25%, d) Top 50%, e) Unteren 50%. (Please check one of the following. My current performance evaluations are rated in the a) Top 5%, b) Top 10%, c) Top 25%, d) Top 50%, e) Lower 50%.)
(Original English indicators). Differences in the German translations are based on the feedback of the pretest.	

Table 12: Operationalization of the Construct 'Subordinates' Performance'

[454] Cf. Winata/Mia (2005), p. 30.
[455] Cf. Chenhall (2003), p. 134 and the literature cited there.
[456] Brownell (1979), p. 63.
[457] Cf. Viator (2001), p. 81 and p. 90.
[458] Cf. Kalbers/Fogarty (1995), p. 83; Gregson/Wendell/Aono (1994), p. 152.
[459] The transformation formula for the first indicator, measured on a seven-point Likert scale, was: (Value - 1)/6. For the second indicator, the transformation formula was: (Value - 1)/4.

2.2 Moderating Model

Supervisors' Power Bases

The conceptualizations of the respondents' perceptions of their supervisors' power bases have to be consistent with the theoretical definitions of power bases from chapter B2.2.2.2. Thus, as HINKIN/SCHRIESHEIM (1989) provide theoretically consistent and previously tested measures for the FRENCH JR./RAVEN (1959) legitimate, referent, and expert power bases, these measures are used for the questionnaire.[460] As HINKIN/SCHRIESHEIM (1989) do not provide measures for the personal and impersonal reward/coercive power bases, the RAVEN/SCHWARZWALD/KOSLOWSKY (1998) measures are used, which are also consistent with this research's theoretical definitions and have empirically been tested by the same authors.[461] Finally, the construct for the information power base is newly developed.

For all power base constructs, the instructions ask respondents to assess the degree to which the statements apply to their direct supervisors. The response categories employed are Likert, ranging from 1 = 'strongly disagree' to 7 = 'strongly agree'. As the indicators should correlate in the same direction for each power base, the power base constructs are measured in a reflective mode.

Legitimate Power Base (LEP)

The legitimate power base describes the degree to which supervisors have the legitimate right to prescribe behavior for their subordinates based on their hierarchical positions.

The final construct consists of three indicators by HINKIN/SCHRIESHEIM (1989).[462] The originally proposed fourth indicator "My supervisor can make me feel that I have commitments to meet." was dropped after the pretest, as most respondents stated that they could not adequately distinguish it from the indicator "My supervisor can make me feel that I have responsibilities to fulfill."

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[460] Cf. Hinkin/Schriesheim (1989), p. 567.
[461] Cf. Raven/Schwarzwald/Koslowsky (1998), p. 330.
[462] Cf. Hinkin/Schriesheim (1989), p. 567.

Indicators of the Construct 'Legitimate Power Base'	
LEP1.	Mein Vorgesetzter kann mir das Gefühl vermitteln, dass ich Verpflichtungen zu erfüllen habe. (My supervisor can make me feel that I have responsibilities to fulfill.)
LEP2.	Mein Vorgesetzter kann mir das Gefühl vermitteln, dass ich meine Job-Anforderungen erfüllen sollte. (My supervisor can make me feel like I should satisfy my job requirements.)
LEP3.	Mein Vorgesetzter kann mir zu verstehen geben, dass ich Aufgaben zu erfüllen habe. (My supervisor can make me recognize that I have tasks to accomplish.)
(Original English indicators). Differences in the German translations are based on the feedback of the pretest.	

Table 13: Operationalization of the Construct 'Legitimate Power Base'

Information Power Base (IFP)

The information power base was earlier defined as the supervisors' access to and control over MAI that subordinates do not have access to. The final construct includes four indicators. Three indicators (IFP1, IFP3, and IFP4) ask respondents about the degree to which their supervisors have access to MAI that they do not have access to. One additional indicator (IFP2) asks whether each organizational member has access to the same types of MAI. Of the four newly developed and pretested indicators, two are reverse coded.

Indicators of the Construct 'Information Power Base'	
IFP1.	Mein Vorgesetzter hat Zugang zu Controllinginformationen, die mir nicht zur Verfügung stehen. (PT: My supervisor has access to MAI that I do not have access to.)
IFP2.	In unserem Unternehmen haben alle Zugang zu denselben Controllinginformationen. (PT: In our company, everybody has access to the same MAI.) (R)
IFP3.	Die Zugangsberechtigungen zu unserem Controllingsystem sind so eingerichtet, dass ich nicht dieselben Controllinginformationen einsehen kann wie mein Vorgesetzter. (PT: The access authorizations to our management accounting system are defined in a way that I cannot see the same MAI as my supervisor.)
IFP4.	Mir stehen dieselben Controllinginformationen wie meinem Vorgesetzten zur Verfügung. (PT: I can access the same management accounting information as my supervisor.) (R)
(PT): Proposed translations for future research. These translations are not validated. *(R): Reverse coded indicators.*	

Table 14: Operationalization of the Construct 'Information Power Base'

Impersonal Reward/Coercive Power Base (RCIP)

The impersonal reward/coercive power base describes the degree to which supervisors can administer either rewarding or non-desirable outcomes. Each dimension (i.e., reward and coercion) is being measured with three reflective indicators originally developed by RAVEN/SCHWARZWALD/KOSLOWSKY (1998).[463]

Indicators of the Construct 'Impersonal Reward/Coercive Power Base'	
RCIP1.	Mein Vorgesetzter kann mir das Leben schwer machen. (My supervisor could make things unpleasant for me.)
RCIP2.	Mein Vorgesetzter kann eine mögliche Gehaltssteigerung für mich erschweren. (My supervisor could make it more difficult for me to get a pay increase.)
RCIP3.	Mein Vorgesetzter kann eine mögliche Beförderung für mich erschweren. (My supervisor could make it more difficult for me to get a promotion.)
RCIP4.	Eine gute Beurteilung durch meinen Vorgesetzten kann zu einer Erhöhung meines Gehalts führen. (A good evaluation of my supervisor could lead to an increase in pay.)
RCIP5.	Mein Vorgesetzter kann mir helfen, geldwerte Vorteile zu erhalten. (My supervisor could help me receive special benefits.)
RCIP6.	Mein Vorgesetzter kann mir helfen, eine Beförderung zu bekommen. (My supervisor's actions could help me get a promotion.)
(Original English indicators). Differences in the German translations are based on the feedback of the pretest.	

Table 15: Operationalization of the Construct 'Impersonal Reward/Coercive Power Base'

Personal Reward/Coercive Power Base (RCPP)

The personal reward/coercive power base describes the perceived ability of the supervisors to administer personal approval or disapproval to the targets. It thus includes relational facets such as personal approval and praise on the one hand, and personal rejection on the other hand. Each dimension (i.e., personal reward and coercion) is being measured with three reflective indicators originally developed by RAVEN/SCHWARZWALD/KOSLOWSKY (1998).[464]

[463] Cf. Raven/Schwarzwald/Koslowsky (1998), p. 330.
[464] Cf. Raven/Schwarzwald/Koslowsky (1998), p. 330.

Indicators of the Construct 'Personal Reward/Coercive Power Base'	
RCPP1.	Es würde mich stören, wenn mich mein Vorgesetzter nicht akzeptiert. (It would have been disturbing to know that my supervisor disapproved of me.)
RCPP2.	Wenn ich nicht das tue, was verlangt wird, kann mein Vorgesetzter kalt und abweisend sein. (My supervisor may have been cold and distant if I did not do as requested.)
RCPP3.	Zu wissen, dass ich in der Missgunst meines Vorgesetzten stehe, würde mich aufregen. (Just knowing that I was on the bad side of my supervisor would have upset me.)
RCPP4.	Die Anerkennung meines Vorgesetzten ist wichtig für mich. (I liked my supervisor and his/her approval was important to me.)*
RCPP5.	Wenn ich die an mich gestellten Anforderungen erfülle, vermittelt mir mein Vorgesetzter das Gefühl, in seiner Wertschätzung zu steigen. (My supervisor made me feel more valued when I did as requested.)
RCPP6.	Ich fühle mich persönlich akzeptiert, wenn ich handele, wie es mein Vorgesetzter verlangt. (It made me feel personally accepted when I did as my supervisor asked.)
(Original English indicators). Differences in the German translations are based on the feedback of the pretest.	
** The first part of the English indicator ('I liked my supervisor') was omitted in the German translation due to the responses of the pretest. Respondents indicated that it was misleading to have two questions in the same indicator and the first part would not capture the content of the construct.*	

Table 16: Operationalization of the Construct 'Personal Reward/Coercive Power Base'

Referent Power Base (REP)

The referent power base describes the supervisors' ability to administer feelings of personal acceptance or approval. It is operationalized with four reflective indicators developed by HINKIN/SCHRIESHEIM (1989).[465]

Indicators of the Construct 'Referent Power Base'	
REP1.	Mein Vorgesetzter kann mir das Gefühl vermitteln, geschätzt zu werden. (My supervisor can make me feel valued.)
REP2.	Mein Vorgesetzter kann mir das Gefühl vermitteln, dass er mich anerkennt. (My supervisor can make me feel like he/she approves of me.)
REP3.	Mein Vorgesetzter kann mir das Gefühl vermitteln, persönlich akzeptiert zu sein. (My supervisor can make me feel personally accepted.)

[465] Cf. Hinkin/Schriesheim (1989), p. 567.

Indicators of the Construct 'Referent Power Base' (cont.)	
REP4.	Mein Vorgesetzter kann mir das Gefühl vermitteln, wichtig zu sein. (My supervisor can make me feel important.)
(Original English indicators). Differences in the German translations are based on the feedback of the pretest.	

Table 17: Operationalization of the Construct 'Referent Power Base'

Expert Power Base (EXP)

The expert power base describes the supervisors' perceived professional knowledge and competence. It is operationalized with four reflective indicators originally developed by HINKIN/SCHRIESHEIM (1989).[466]

Indicators of the Construct 'Expert Power Base'	
EXP1.	Mein Vorgesetzter kann mir gute fachliche Ratschläge geben. (My supervisor can give me good technical suggestions.)
EXP2.	Mein Vorgesetzter kann mich an seiner beträchtlichen Erfahrung und/oder Ausbildung teilhaben lassen. (My supervisor can share with me his/her considerable experience and/or training).
EXP3.	Mein Vorgesetzter kann mir verlässliche berufliche Ratschläge geben. (My supervisor can provide me with sound job-related advice.)
EXP4.	Mein Vorgesetzter kann mir erforderliches fachliches Wissen zur Verfügung stellen. (My supervisor can provide me with needed technical knowledge.)
(Original English indicators). Differences in the German translations are based on the feedback of the pretest.	

Table 18: Operationalization of the Construct 'Expert Power Base'

Subordinates' Characteristics

Work Locus of Control (WLOC)

Work locus of control is a construct related to attribution and examines managers' control beliefs in their respective jobs. It is assessed with an adapted version of the SPECTOR (1988) work locus of control scale, which evaluates the extent to which subordinates perceive they are in control or not in control of what happens to them in their

[466] Cf. Hinkin/Schriesheim (1989), p. 567.

jobs.[467] Of the original reflective 16-indicator construct, only eight indicators are used for the final questionnaire based on the pretest results. The indicators are cast on a seven-point Likert scale ranging from 1 = 'strongly disagree' to 7 = 'strongly agree'.

Indicators of the Construct 'Work Locus of Control'	
WLOC1.	Es ist größtenteils Glück, ob man den Job bekommt, den man haben möchte. (Getting the job you want is mostly a matter of luck.)
WLOC2.	Ob man viel Geld verdient, ist vor allem vom Schicksal abhängig. (Making money is primarily a matter of good fortune.)
WLOC3.	Um einen wirklich guten Job zu finden, benötigt man gute persönliche Kontakte. (In order to get a really good job, you need to have family members or friends in high places.)
WLOC4.	Beförderungen sind normalerweise Glückssache. (Promotions are usually a matter of good fortune.)
WLOC5.	Wenn man einen Job gefunden hat, sind persönliche Beziehungen wichtiger als Wissen. (When it comes to landing a really good job, who you know is more important than what you know.)
WLOC6.	Um viel Geld zu verdienen, muss man die richtigen Leute kennen. (To make a lot of money, you have to know the right people.)
WLOC7.	Um in den meisten Jobs ein herausragender Mitarbeiter zu sein, erfordert es eine Menge Glück. (It takes a lot of luck to be an outstanding employee on most jobs.)
WLOC8.	Der Hauptunterschied zwischen denen, die viel, und denen, die wenig Geld verdienen, ist Glück. (The main difference between people who make a lot of money and people who make a little money is luck.)
(Original English indicators). Differences in the German translations are based on the feedback of the pretest.	

Table 19: Operationalization of the Construct 'Work Locus of Control'

Work Self-Efficacy (WLOC)

Finally, to assess work self-efficacy, the German version of the reflective ten-indicator measure by SCHWARZER/JERUSALEM (1999) is adapted for working situations.[468] It asks respondents to indicate their confidence in their own ability to cope with a variety

[467] Cf. Spector (1988), p. 340.
[468] Cf. Schwarzer/Jerusalem (1999), p. 13. The reported indicators are based on the revised ten-indicator version of a 20-indicator construct originally developed in 1981 and published in 1986 by the same authors. Cf. Jerusalem/Schwarzer (1986).

of barriers or problems in their jobs. Responses are elicited on a seven-point Likert scale ranging from 1 = 'strongly disagree' and 7 = 'strongly agree'.

Indicators of the Construct 'Work Self-Efficacy'	
WSEF1.	Wenn sich Widerstände auftun, finde ich Mittel und Wege, mich durchzusetzen. (If someone opposes me, I can find the means and ways to get what I want.)
WSEF2.	Die Lösung schwieriger Probleme gelingt mir immer, wenn ich mich darum bemühe. (I can always manage to solve difficult problems if I try hard enough.)
WSEF3.	Es bereitet mir keine Schwierigkeiten, meine Absichten und Ziele zu verwirklichen. (It is easy for me to stick to my aims and accomplish my goals.)
WSEF4.	In unerwarteten Situationen weiß ich immer, wie ich mich verhalten soll. (I am confident that I can deal efficiently with unexpected events.)
WSEF5.	Auch bei überraschenden Ereignissen glaube ich, dass ich gut mit ihnen zurechtkommen kann. (Thanks to my resourcefulness, I know how to handle unforeseen situations.)
WSEF6.	Schwierigkeiten sehe ich gelassen entgegen, weil ich meinen Fähigkeiten immer vertrauen kann. (I can remain calm when facing difficulties because I can rely on my coping abilities.)
WSEF7.	Was auch immer passiert, ich werde schon klarkommen. (I can usually handle whatever comes my way.)
WSEF8.	Für fast jedes Problem habe ich eine Lösung. (If I am in trouble, I can usually find a solution.)
WSEF9.	Wenn eine neue Sache auf mich zukommt, weiß ich, wie ich damit umzugehen habe. (I can solve most problems if I invest the necessary effort.)
WSEF10.	Wenn ein Problem auf mich zukommt, habe ich meist mehrere Ideen, wie ich es lösen kann. (When I am confronted with a problem, I can usually find several solutions.)
(English indicators of the SCHWARZER/JERUSALEM (1999) Construct)	

Table 20: Operationalization of the Construct 'Work Self-Efficacy'

Task Difficulty (TDIF)

Task difficulty refers to "[…] the ability to specify input/output relations. The easier and the more objective is this specification the lower is task difficulty."[469] The construct is measured with an adapted version of a construct originally developed by DAFT/MACINTOSH (1981) and thoroughly tested for discriminant and convergent va-

[469] Brownell/Dunk (1991), p. 695.

lidity by WITHEY/DAFT/COOPER (1983).[470] The latter authors conclude that the DAFT/MACINTOSH (1981) measure is one of the best to use in research.[471] As the original construct measures task difficulty on the work unit level, it is adapted to the individual level of analysis. Based on the pretest results, seven indicators are used for the final survey, of which one is reverse coded. The answer categories range from 1 = 'strongly disagree' to 7 = 'strongly agree'. The instrument is deemed reflective, as all indicators should simultaneously be ranked high or low.

Indicators of the Construct 'Task Difficulty'	
TDIF1.	Meine Aufgaben im Unternehmen sind sehr repetitiv. (My tasks at work are highly repetitive.)
TDIF2.	Meine Arbeit im Unternehmen ist in hohem Umfang Routine. (My work is routine to a high extent.)
TDIF3.	Es gibt eine klar definierte Wissensbasis, die als Grundlage für meine Arbeit im Unternehmen dient. (My work activities are guided by a clearly defined knowledge base.)
TDIF4.	Meine Aktivitäten im Unternehmen folgen größtenteils einer einfach verständlichen Abfolge. (My work activities mostly follow procedures that are easily comprehendible.)
TDIF5.	Die meisten meiner beruflichen Aktivitäten ähneln sich von einem Tag auf den anderen. (Most of my work activities are similar from one day to the next.)
TDIF6.	Ich kann mich in einem hohen Maße auf eingespielte Verfahren und Methoden verlassen. (I can rely on established procedures and practices to a high extent.)
TDIF7.	Insgesamt ist die Situation innerhalb unseres Unternehmens durch häufige Veränderungen und eine hohe Komplexität geprägt. (Overall, the situation within our company is characterized by frequent changes and a high complexity.) (R)
(Original English indicators). Differences in the German translations are based on the feedback of the pretest. (R): Reverse coded indicators	

Table 21: Operationalization of the Construct 'Task Difficulty'

The following section describes the data collection process as well as the final sample characteristics. Subsequently, the two main methods for evaluating causal models, covariance- and variance-based approaches, will be compared and a method for this research selected.

[470] Cf. Daft/Macintosh (1981), p. 215; Withey/Daft/Cooper (1983), p. 59.
[471] Cf. Withey/Daft/Cooper (1983), p. 57.

3. Data Collection and Sample

3.1 Data Collection Process

The data were collected in a large sales division of a German utility provider, hereafter referred to as ABC.[472] ABC is a functionally structured, self-dependent branch. The management structure is formalized, with clear hierarchies and long-term working relationships, thereby fulfilling one key assumption of this research.[473]

During phase one of this research (cf. Figure 6), a first version of the questionnaire was constructed using company-internal and -external reports of ABC, interviews with supervisors from within the organization as well as external industry experts, and (predominantly) available research constructs. The first draft was then sent to a small sample of academics and practitioners to ensure comprehensibility and completeness of the questions asked, neutrality of the wording, as well as an adequate overall structure and length of the questionnaire.[474] In May 2005, a revised version was distributed to 35 practitioners and academics from various fields, 30 of whom returned a completed questionnaire. Based on their answers and suggestions, some indicators were again reworded and/or deleted. Although the sample size was small, most of the scales' reliability and validity were found to be within satisfactory ranges, providing confidence for the final data collection.

The second research phase started in July 2005. Based on the research's assumptions, 105 questionnaires were distributed among managers on the first, second, and third hierarchy level at ABC.[475] The selected hierarchy levels ensured that all respondents had comparable access rights to the formal management accounting system and that they had the necessary job tenure to evaluate the key constructs of the questionnaire.[476] The questionnaires included an enclosed letter that indicated top-management support for the project and a cover letter with a short description of the research project, a con-

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[472] A maximum length of four pages was stipulated by the company.
[473] Cf. chapter C1.
[474] Cf. Kinnear/Taylor (1991), p. 352; Hunt/Sparkman Jr./Wilcox (1982), pp. 265f.
[475] For a detailed discussion of this research's assumptions cf. chapter C1.
[476] A high-level manager at ABC supported the entire data collection and sampling procedure. Possible biases that may result due to the non-probability sample are addressed in chapter D3.2.

fidentiality condition, and a return deadline.[477] In order to reduce response bias, participants were provided with addressed return envelopes to return the completed questionnaires directly to the researcher.[478] Respondents were guaranteed anonymity and were assured that all data would be reported only in aggregated form. To guarantee that each subordinate would evaluate a different supervisor, demographic and job-related data such as hierarchy level and job tenure of both subordinates and the evaluated supervisors (as indicated by the subordinates) were collected. Later comparisons revealed that no redundant evaluations were made. In order to increase the response rate, each participant was provided with a stamped and self-addressed envelope.[479] Moreover, respondents were promised a benchmarking report and free participation in a workshop as incentives. Shortly after the first deadline, which was set approximately six weeks after the initial dispatch, the Senior Staff Council of ABC interfered due to the delicate nature of the questions asked, arguing that one could theoretically identify the respondents based on the demographical questions and the postmark on the return envelopes. While the first round had already been successfully completed, the originally planned follow-up mail initiative could, therefore, not be conducted. From the first round, 52 questionnaires were returned for analysis (49.5 percent of those distributed). All but one of the returned questionnaires, filled out by a management trainee, could be included. The final sample thus consists of 51 questionnaires, equaling an effective response rate of 48.6 percent.

Phase three of the research started in October 2005, after the questionnaire data were analyzed, and the causal model results obtained. Interviews with supervisors on the second hierarchy level of ABC, who had participated in the survey, were conducted. They contained open questions to substantiate the questionnaire findings and lasted approximately one hour each. They were mechanically recorded and the tapes were duly transcribed. The first part of each interview was devoted to answering questions regarding managers' use of MAI. The second part was spent in discussion of questions relating to their supervisors' power bases and influence strategies as well as their own commitment and performance. The interviews followed an interview guideline to en-

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[477] For the importance of cover letters cf. Diamantopoulos/Schlegelmilch (1996), p. 523.
[478] Cf. Fox/Crask/Kim (1988), pp. 474f.
[479] Linsky (1975) reviews eight experiments, all of which conclude that a stamped envelope increases the return rate, as participants are more reluctant to throw away an unused stamp. Cf. Linsky (1975), p. 89 and the literature cited there; further cf. Fox/Crask/Kim (1988), p. 475.

sure that both interviewees would be exposed to the same questions, but the exact question sequence was kept flexible so that the questions could be adapted to each respondent.

3.2 Final Sample Characteristics

As documented above, the final sample consists of 51 questionnaires, filled out by managers from the first, second, and third hierarchy level. Detailed sample characteristics are shown in Table 22.

Demographic Characteristics	**N**	**Percentage**
	51	**100%**
Age		
Up to 25 Years	0	0.0%
26-35 Years	6	11.8%
36-45 Years	29	56.9%
46-55 Years	12	23.5%
Over 55 Years	4	7.8%
Gender		
Female	3	5.9%
Male	48	94.1%
Job Tenure		
<1 Year	2	3.9%
1-5 Years	8	15.7%
>5 Years	41	80.4%
Education Level		
University of Applied Sciences	9	17.6%
University	34	66.7%
Doctorate	8	15.7%
Hierarchy Level		
Level 1	11	21.6%
Level 2	18	35.3%
Level 3	22	43.1%

Table 22: Detailed Sample Data

Of the respondents, over 80 percent are older than 36 years, have at least a university degree, and job tenure of more than five years. This guarantees that respondents are highly experienced and worked in the company for a long enough period to answer the questionnaires ‘meaningfully’. The degree of homogeneity in the sample further pro-

vides confidence that there are no biases due to demographic and/or functional differences. Additionally, over 90 percent are male, which assures that there are no significant biases in the findings due to gender differences.[480] As shown in the lower part of Table 22, respondents indicated that they worked on either the first, second, or third hierarchy level. Correspondingly, the supervisors they assessed worked on the first and second hierarchy level.[481] Before proceeding with the structural equation model, it was thus important to assess whether there are differences between the indicators on different hierarchy levels. As the data do not fulfill assumptions of normality, only non-parametric tests can be conducted.[482]

To identify possible differences between the three hierarchy levels of the respondents, a Kruskal-Wallis test (KW) was conducted to compare the means for each self-assessed indicator. The KW is a non-parametric equivalent to the analysis of variance that compares three or more treatment groups.[483] It generally tests the null hypothesis that k numbers of samples come from the same population.[484] In this case, the following homogeneity assumption was tested: 'The answers of all independently asked managers from hierarchy levels one, two, and three come from three populations with identical distributions and can all be pooled to one population.' As depicted in Appendix 1, all indicators for subordinates' performance, work locus of control, and task difficulty come from the same population. For some of the indicators of subordinates' commitment and work self-efficacy, group locations differ. However, the resulting differences in the SEM analysis are negligible so that the data are pooled for analysis. Based on the results, there is no reason to doubt the homogeneity of the population, which implies that answers from different hierarchy levels can be merged for analysis.

For detecting possible differences between the variable means of the two supervisor hierarchy levels (as indicated by the subordinates), a Mann-Whitney U-test (MW), a nonparametric equivalent to the t-test, was conducted.[485] Compared to the t-test, the

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[480] On the downside, the sample does not allow to control for these differences. For a discussion of gender differences in the use of power and influence cf. Schwarzwald/Koslowsky (1999).

[481] Managers on the first hierarchy level evaluated members of ABC's executive committee.

[482] The normal distribution assumption was tested with a Kolmogorov-Smirnov test for each indicator, as well as a test for skewness. Cf. Bortz (2005), pp. 74-77.

[483] Cf. McClave/Benson/Sincich (2005), pp. 1095f.

[484] A detailed description of the KW is provided by Sachs (2006), pp. 394-401.

[485] U describes the number of times a value in the first group precedes a value in the second group, when values are sorted in ascending order. Cf. Sachs (2006), pp. 381f.

MW is regarded as the more powerful method, because it better maintains the specified α-significance level.[486] The MW requires independence within samples, mutual independence between samples, and an ordinal level of measurement. It tests the following null hypothesis: 'The possibility that one observation in the first sample is higher than an arbitrary observation in the second sample is 1/2.'[487] The results of the MW indicated that 33 out of 34 indicators come from the same location. Only the groups for the indicator EXP4 come from different locations (cf. Appendix 2). The data were accordingly pooled for the subsequent analysis.

While the pooled questionnaire data are later used to test the postulated hypotheses, the following aspects may potentially affect the validity of the conclusions: [488]

- A first possible concern arises from the fact that managers may not have been able to evaluate themselves and/or their supervisors accurately and unbiasedly. They may instead have reflected a behavior deemed socially desirable and have had a tendency to present "[…] themselves in a favorable light, regardless of their true feelings about an issue or topic."[489] Further, when evaluating their supervisors' power bases and influence strategies employed, managers evaluated situations that had taken place in the past and had already resulted in certain outcomes, which may have led to a retrospection bias.[490] However, with 51 informants in one company instead of the use of one key informant, a 'general' social desirability and retrospection bias should not seriously affect the findings.[491] This is underlined by the fact that the questionnaires were filled out anonymously and that over 90 percent of the respondents had been working in the company (and thus industry) for more than five years and fulfilled similar job functions so that functional differences are not an issue.[492]

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[486] Cf. Sachs (2006), p. 382.

[487] The null hypotheses is rejected when the value U is smaller or equal to a critical value, which can be obtained from a table provided by, for example, Sachs (2006), p. 384.

[488] The analysis is done with the software packages SPSS (Version 13.0), SmartPLS (Version 2.0 M2), and Visual PLS. SmartPLS was downloaded from http://www.smartpls.de. Visual PLS was downloaded from http://www2.kuas.edu.tw/prof/fred/vpls. Download date for both programs was December 11, 2005.

[489] Podsakoff et al. (2003), p. 881; further cf. Hurrle/Kieser (2005), p. 596. These biases are also referred to as social desirability bias and self-serving attributions.

[490] Cf. Golden (1992), p. 438.

[491] Cf. Golden (1997), p. 1245.

[492] For the problems associated with differences in the functional background of key informants cf. Hurrle/Kieser (2005), p. 595

- In general, data collection of both independent and dependent variables by one respondent may influence the validity of the constructs and the strengths of the relationships, which is not attributable to the constructs, but to the measurement method employed (so-called common method variance or common method bias).[493] Respondents may further have wanted to maintain consistency in their answers to similar questions.[494] While the occurrence of common method bias and consistency in the answers cannot be completely dismissed, these issues were addressed in advance by separating independent and dependent variables in the questionnaire and by reverse scaling some of the indicators.[495] Ambiguous and unclear wordings were reduced by thoroughly pretesting the questionnaire.[496]
- Several researchers have alluded to the fact that answers by late respondents may significantly differ from those of early respondents.[497] In order to assess whether a non-response-bias has affected the validity of the conclusions, the MW was used to compare the questionnaire data from the first four weeks (early respondents) to those of the last two weeks (late respondents), including some responses received after the deadline. Additionally, the KW was conducted to analyze differences across groups in two-week increments. Results indicated no significant differences in the variables signifying that non-response-bias is statistically not an issue.
- Another concern may be associated with the sampling procedure employed.[498] ABC allowed 105 questionnaires to be sent to high-level managers. Questionnaires were, therefore, sent to ABC's German subsidiaries, asking the respective highest-ranking manager to distribute the questionnaires to first, second, and third level managers only. As the sampling procedure relied on personal judgement in the se-

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[493] "Method variance refers to variance that is attributable to measurement method rather than to the construct of interest. The term *method* refers to the form of measurement at different levels of abstraction, such as the content of specific items, scale type, response format, and the general context […]. At a more abstract level, method effects might be interpreted in terms of response biases such as halo effects, social desirability, acquiescence, leniency effects, or yea- and nay-saying." Bagozzi/Yi (1991), p. 426; for a detailed discussion of the topic cf. Podsakoff et al. (2003) and Podsakoff/Organ (1986).

[494] This is referred to as the consistency motif. Cf. Podsakoff et al. (2003), p. 881.

[495] Cf. Podsakoff et al. (2003), p. 888; Drolet/Morrison (2001), p. 201.

[496] Cf. Churchill Jr./Iacobucci (2005), pp. 254-261; Podsakoff et al. (2003), p. 888.

[497] Cf. Armstrong/Overton (1977), p. 397.

[498] Cf. Coviello/Jones (2004), p. 493. A sample can be defined as a finite fraction of a statistical population for gaining an understanding of the whole. The sampling process refers to the process of selecting sample elements. Cf. Churchill Jr./Iacobucci (2005), pp. 322-324.

lection process of respondents and there was "[…] no way of estimating the probability that any population element will be included in the sample […]"[499], the present sample is a nonprobability sample. Nonprobability samples can be convenience, quota, or judgement samples.[500] A convenience sample is not recommended for causal analysis as respondents accidentally enter the study and representativeness of the sample cannot be guaranteed.[501] A quota sample attempts "[…] to ensure that the sample is representative by selecting sample elements in such a way that the proportion assessing a certain characteristic is approximately the same as the proportion in the population."[502] Although a quota sample reflects certain predefined proportions of the parent population, it may still neglect other vital characteristics and thus prevent the researcher from drawing meaningful conclusions. Finally, the aim of judgement or purposive samples is to select only those respondents who can provide meaning to the research purpose, i.e., who "[…] can offer some perspective on the research question."[503] In the present research, the type of respondents (i.e., first, second, and third-level managers) did not accidentally enter the study, but they were purposefully selected. However, as they were not selected based on certain characteristics representative of the entire sample, but rather for being able to meaningfully answer the questionnaire and thus provide new ideas and insights for the research questions, the present sample is considered judgemental. While the results of this judgement sample cannot be generalized beyond the realm of ABC, it was chosen as it was considered advantageous for early, exploratory research such as this one where new insights are to be generated.[504]

- The specified hierarchy levels and other demographic data cannot be confirmed with 100 percent certainty. However, two aspects argue against the assumption that data were filled out by other management levels. Some managers called the author to ask for further guidance and provided him with details about their job positions. In addition and most importantly, the Senior Staff Council interfered and prevented

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[499] Churchill Jr./Iacobucci (2005), p. 324.
[500] Cf. Churchill Jr./Iacobucci (2005), pp. 326-329; Galtung (1969), p. 56.
[501] Cf. Churchill Jr./Iacobucci (2005), pp. 326f.
[502] Churchill Jr./Iacobucci (2005), p. 328.
[503] Churchill Jr./Iacobucci (2005), p. 327.
[504] Cf. Churchill Jr./Iacobucci (2005), p. 328; Coviello/Jones (2004), p. 493.

a follow-up. This speaks for the fact that the questionnaires were only filled out by high-level managers.

The above comments show that there might be adverse affects to the results due to the chosen measurement and sampling methods. However, the informational value of the data should not be significantly affected. In the following chapter, the two main techniques for evaluating structural equation models will be discussed and a preferred method will be selected based on preceding discussions of the research assumptions, the research strategy, the operationalization of the LVs, and the sample characteristics.

4. Structural Equation Modeling

4.1 Fundamentals

As described in chapter D.1.3, SEM is a second-generation confirmatory statistical method that combines elements of multivariate regression and factor analysis.[505] SEM can thus be employed for "[…] representing, estimating, and testing a theoretical network of (mostly) linear relationships between variables, where those variables may be either observable or directly unobservable, and may only be measured imperfectly."[506]

The resulting causal models depict causal linear relationships between LVs or constructs that are not directly observable. Causal models must be formulated in a recursive mode, i.e., they must only include unidirectional relationships.[507] They are specified by one structural ('inner') model that specifies the theoretically deducted relationships between LVs and several measurement ('outer') models that specify the relationships between LVs and their associated manifest indicators. According to ANDERSON/GERBING (1982), "[t]he reason for drawing a distinction between the measurement and the structural model is that proper specification of the measurement model is necessary before meaning can be assigned to the analysis of the structural model."[508]

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[505] Cf. Chin/Newsted (1999), p. 308.
[506] Rigdon (1998), p. 251.
[507] Cf. Tenenhaus et al. (2005), p. 166; Chin/Newsted (1999), p. 321.
[508] Anderson/Gerbing (1982), p. 453.

Causal models are typically visualized by a path diagram. Figure 7 shows a complete causal model, in which the independent LVs (ξ_1, ξ_2, and ξ_3) are referred to as exogenous, and the dependent LVs (η_1 and η_2) are referred to as endogenous.[509] In this example, both the exogenous and endogenous LVs are measured by two indicators (x_1, $x_2 \ldots x_6$ and y_1, $y_2 \ldots y_4$).

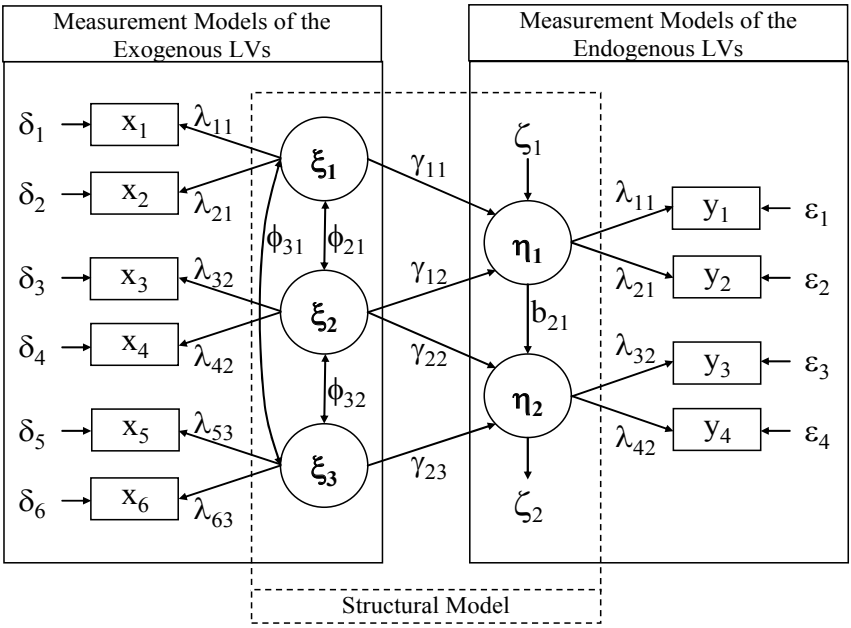

Figure 7: Exemplary Causal Model[510]

Following FORNELL/CHA (1994), the relationships between the exogenous and the endogenous LVs in the structural model can formally be described as follows:

(D.1) $\eta = B^*\eta + \Gamma^*\xi + \zeta$.[511]

[509] Exogenous or independent LVs have no antecedent LVs affecting them. On the contrary, endogenous or dependent LVs have one or more antecedent LVs affecting them.
[510] Own compilation following Ringle (2004), p. 281.
[511] Here and in the following cf. Fornell/Cha (1994), p. 58.

In equation D.1, η denotes the vector of the endogenous LV, ξ represents the vector of the exogenous LV and ζ is the vector of residual variables, i.e., unexplained variance.[512] The coefficient matrix B represents the direct relationships between the endogenous LVs, whereas the coefficient matrix Γ denotes the direct relationships between the exogenous and endogenous LVs.

The measurement models concretize the structural model, specifying how "[…] each block of indicators relates to its latent variable."[513] The direction of the arrows between the LVs and their indicators depends on the type of relationships, which can be either reflective or formative.[514] Figure 8 visualizes three different modes of measurement models.

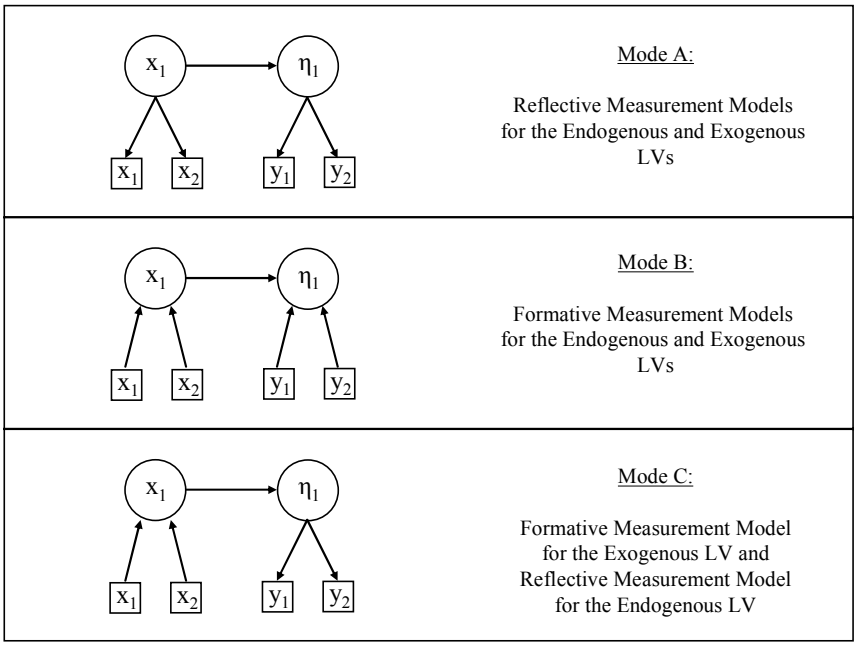

Figure 8: Three Modes of Measurement Models[515]

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[512] Cf. Chin/Newsted (1999), p. 321.
[513] Chin/Newsted (1999), p. 322.
[514] Cf. Diamantopoulos/Winklhofer (2001), p. 274; further cf. chapter D2.
[515] Own compilation following Fornell/Bookstein (1982), p. 441.

Reflective measurement models assume that the observed variation in the indicators is caused by the underlying construct. It is a principal components model, in which the covariation between the indicators is caused by variation in the underlying factor model. The direction of causality flows from the LV to its indicators so that a change in the construct is assumed to cause changes in each indicator.[516] As each indicator equally reflects the underlying construct, the indicators are deemed interchangeable and should be highly correlated.[517] Dropping one indicator will neither alter the meaning of the construct nor change the overall construct validity.

A measurement perspective based on formative (or causal) indicators reflects the notion that oftentimes "[…] indicators could be viewed as causing rather than being caused by the LV measured by the indicators."[518] Consequently, in formative measurement models, causality is reversed and the indicators represent underlying facets of the LV.[519] In contrast to reflective measurement models, "[…] omitting an indicator is omitting a part of the construct"[520] and will, therefore, modify the conceptual meaning of the LV. As formative measurement models do not explain the correlation between the indicators, it becomes more difficult to assess their validity: "Internal consistency is of minimal importance because two variables that might even be negatively related can both serve as meaningful indicators of a construct."[521]

The distinction between reflective and formative measurement models can also be shown in their formal depiction. According to FORNELL/CHA (1994), a reflective measurement can be described as follows:

(D.2) $y = \Lambda_y * \eta + \varepsilon_y;$

$x = \Lambda_x * \eta + \varepsilon_x.$[522]

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[516] Cf. Jarvis/MacKenzie/Podsakoff (2003), pp. 199f.; further cf. Nunnally (1978).
[517] It may, however, adversely affect construct reliability and/or lead to identification problems if the number of remaining indicators is too low. Cf. Bagozzi (1994), p. 331; Churchill Jr. (1979), p. 66.
[518] MacCallum/Browne (1993), p. 533.
[519] Cf. Fornell/Bookstein (1982), p. 441.
[520] Bollen/Lennox (1991), p. 308; further cf. Jarvis/MacKenzie/Podsakoff (2003), p. 202.
[521] Nunnally/Bernstein (1994), p. 489.
[522] Here and in the following cf. Fornell/Cha (1994), p. 59. Exogenous and endogenous LVs are operationalized via manifest indicators, whose error terms are designated with the parameters δ, ε, and ζ.

In equation D.2, x and y reflect the observed indicators as well as the factor loadings, which are included in the matrices Λ_y and Λ_x. Vectors ε_y and ε_x specify the equations' residuals. Factor loadings are directly proportional to the variance of the indicators, which is determined by the LV.

In contrast, a formative measurement implies the following relationships:

(D.3) $$\eta = \pi_\eta * y + \delta_\eta;$$

$$\xi = \pi_\xi * y + \delta_\xi .$$

In addition to the variables in equations D.1 and D.2, equation D.3 introduces the matrices π_η and π_ξ of the regression coefficients as well as vectors δ_η and δ_ξ for the residuals of the multiple regressions. Formal indicators form an index rather than a scale so that the weights indicate the relevance of the individual independent variables.[523]

A structural model can include both formative and reflective measurement models.[524] However, the choice between a reflective and a formative model specification depends on the causal priority between the LV and the manifest indicators. The distinction has to be made in advance as it affects the operationalization of the constructs and the methods for assessing construct reliability and validity. Further, misspecification of the measurement models results in strong biases in the structural paths so that empirical conclusions about the relationships between latent constructs cannot adequately be drawn.[525]

According to FORNELL/BOOKSTEIN (1982), personal or attitudinal constructs are usually seen as "[…] underlying factors that give rise to something that is observed. Their indicators tend to be realized then as reflective. In contrast, when constructs are conceived as *explanatory combinations* of indicators (such as 'population change' or 'marketing mix') that are determined by a combination of variables, their indicators should be formative."[526]

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[523] Cf. Chin (1998b), p. 307.
[524] Cf. Fornell/Bookstein (1982), p. 442.
[525] Cf. Jarvis/MacKenzie/Podsakoff (2003), p. 212; Galtung (1969), p. 281.
[526] Fornell/Bookstein (1982), p. 442; further cf. Rossiter (2002), p. 316.

4.2 Method Comparison and Selection

After the specification of the measurement models and the structural model comes the statistical analysis of the proposed relationships. The statistical methods for model estimation are identical with regard to the structural model considerations, and they all allow integrating measurement error. Main differences result from the extent of existing theoretical and empirical knowledge, sample size requirements, model complexity, data assumptions, as well as the relationships between the LVs in their indicators.[527] For the estimation of causal models, covariance-based and PLS (or variance-based) approaches are distinguished.

4.2.1 Covariance-Based Approach

The covariance-based approach estimates the model parameters by trying to reproduce the empirical covariance matrix of its indicators to the best possible extent.[528] It starts by calculating a covariance matrix based on the empirical data. Then, parameter estimates are chosen for a specified model so that "[…] the implied covariance based on the model parameter estimates is as similar as that of the sample data set."[529] The approach recurrently estimates the parameter estimates with the purpose of minimizing a fitting function between the sample correlations and the parameter estimates until it can no longer be improved.

The outlined procedure makes the underlying assumptions that empirical data follow a multivariate normal distribution and that observations are independent.[530] If these assumptions are met and the sample size is sufficiently large, estimators are consistent and unbiased and can then be regarded as optimal estimates of the model parameters. However, the procedure is indeterminate as no case values for the LVs can be obtained and there is no possibility to predict observed indicators. Further, when distribution assumptions are not met and sample sizes are small, inappropriate solutions such as

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[527] For a detailed discussion of the selection criteria cf. chapter D4.2.3.

[528] Therefore, different algorithms like Maximum Likelihood, Generalized Least Squares, Weighted Least Squares, or Unweighted Least Squares exist. Most of them lead to consistent estimators. Only the estimators of the Unweighted Least Sqares algorithm tend to be less efficient. It therefore requires a lower sample size as compared to the other algorithms. Cf. Rigdon (1998), p. 265.

[529] Chin (1998b), p. 299.

[530] Cf. Chin (1998b), p. 297.

negative variance estimates may result.[531] Moreover, formative measurement models can hardly be integrated, as they do not allow explaining the covariances of all indicators. Despite the rigorous assumptions with regard to data distribution, scaling, sample size, and integration of different measurement models, which are oftentimes not met by the empirical data,[532] covariance-based approaches are most widely used in the social sciences for estimating structural models.[533]

4.2.2 Partial Least Squares Approach

The PLS approach was originally developed by HERMAN WOLD (1975), who wanted to "[…] take an intermediate position between data analysis and traditional modeling based on the 'hard' assumption that the observables are jointly ruled by a specified probability distribution."[534] Like covariance-based approaches, PLS allows the modeling of causal relationships, but has the primary goal to obtain "[…] determinate values of the LVs for predictive purposes."[535] Thus, the objective is to minimize the residual variance of the endogenous or dependent LVs.[536]

The starting point of a PLS analysis is the approximation of the LVs by their respective indicators.[537] For that reason, component scores for the LVs are obtained through the weighted sum of their indicators. The optimal weighting scheme for each block of indicators is dependent upon the estimated research model. The PLS algorithm permits indicators to vary in the extent to which they contribute to the composite score of a LV. In other words, "[…] indicators with weaker relationships to related indicators and to the latent construct are given lower weightings, and those varied weightings are carried through to an assessment of the theoretical estimates."[538] In the above example depicted in Figure 8, this implies that indicators x_1 through x_6 should be optimally

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[531] Cf. Dillon/Kumar/Mulani (1987), p. 128.
[532] Cf. Fornell/Bookstein (1982), p. 440.
[533] Backhaus/Büschken (1998) find the following proportions of utilized structural equation approaches: 81.0 percent (LISREL), 14.0 percent (PLS), and 5.0 percent (EQS). These results are largely due to the popularity of the LISREL software. Cf. Backhaus/Büschken (1998), p. 165.
[534] Wold (1982a), p. 200; further cf. Wold (1982b); Wold (1982c); Wold (1975).
[535] Chin (1998b), p. 301.
[536] A description of the formal PLS model specification is provided by Chin/Newsted (1999), pp. 321-326.
[537] In the following cf. Chin (1998b), pp. 301f.
[538] Chin/Marcolin/Newsted (2003), p. 197.

combined to create component scores for ξ_1, ξ_2, and ξ_3 that are able to explain the maximum amount of variance of $x_1 ... x_6$ and of η_1 and η_2. In the same way, indicators y_1 through y_4 shall be combined to create the best component scores for η_1 and η_2.

PLS employs a three-phase algorithm in order to obtain the optimal weighting scheme and the following loadings and path estimates. Depending on the research model, during phase one, simple and/or multiple regressions are iteratively performed until a solution approximates the weights use for estimating the LV scores. Subsequently, during phases two and three, a series of simple non-iterative Ordinal Least Squares regressions is performed to obtain "[…] loadings, path coefficients, and mean scores and location parameters for the LV and observed variables."[539] During stages one and two, the LVs and their indicators are considered deviations from their means.

To summarize, PLS is a components-based SEM method that is similar to regression, but concurrently models the structural paths and the measurement paths.[540] The approach is "[…] partial in a least squares sense because each step of the procedure minimizes a residual variance with respect to a subset of parameters being estimated given proxies or fixed estimates for other parameters."[541] With respect to the present research, the question arises which selection criteria can be employed for choosing between the covariance-based and the PLS approach.

4.2.3 Method Selection for the Present Research

The main differences between the covariance-based and the PLS approach result from the primary research objective and the extent of existing theoretical and empirical knowledge, sample size requirements, model complexity, data assumptions, as well as the relationships between the LVs in their indicators.

The first selection criterion regards the primary research objective and the extent of existing theoretical and empirical knowledge. Covariance-based approaches are predominantly used for theory confirmation, i.e., when substantive theoretical and empirical knowledge exists. In contrast, PLS allows proposing where relationships do or do

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[539] Chin (1998b), p. 302.
[540] Cf. Chin/Marcolin/Newsted (2003), p. 197.
[541] Chin (1998b), p. 303.

not exist, i.e., it can be employed for exploratory research contexts where theoretical and empirical knowledge is scarce.[542] PLS, in other words, places a higher emphasis on the data relative to the theory and shifts the focus from theory confirmation to prediction.[543] In this research, there is no substantive theoretical or empirical knowledge on how different informational influence strategies based on MAI affect influence outcomes and how supervisors' power bases moderate these relationships, which makes PLS the preferred method of analysis.

The second selection criterion regards sample size requirements. In general, PLS is less restrictive than covariance-based approaches. As only one part of the model is estimated at a time and only simple or multiple regressions are performed, the minimum sample size for estimating a PLS model results from the largest regression analysis in the model. As a rule of thumb, the sample size shall exceed either ten times (1) the largest regression (i.e., the number of the largest amount of exogenous LVs expected to load on an endogenous LV) or (2) the number of indicators of the largest formative LV.[544] The higher of the two requirements determines the minimal sample size. As no formative LVs are used in this study, the larger requirement results from the second criterion.[545] The maximum number of independent LVs that are simultaneously modeled to influence a dependent LV (subordinates' commitment or subordinates' performance) is three (UEA, UEP, and one moderating LV). Following these heuristics, a PLS application requires a minimum sample size of 30 cases, which is well exceeded by this sample size of 51 cases. In contrast, a covariance-based model is typically assumed to require a large sample for statistical precision. The corresponding literature specifies a minimum of 200 cases or 10 or 20 cases for each estimated parameter, which would far exceed this sample size.[546] According to this criterion, PLS is the preferred approach.

The third selection criterion regards the possible model complexity. Whereas covariance-based approaches typically require a small to moderate complexity, PLS allows modeling models with large complexity, i.e., a large number of LVs and indicators.

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[542] Cf. Chin (1998b), p. 295.
[543] Cf. Chin/Newsted (1999), p. 312.
[544] Cf. Chin/Newsted (1999), pp. 335f.; Chin (1998b), p. 311.
[545] Cf. chapter D2.
[546] Cf. Chin/Newsted (1999), p. 314; Mueller (1996), p. 26 and p. 57.

The main research model in this study involves only four LVs that are extended individually by one moderating LV and the respective interaction term. As the model complexity can, therefore, be considered small, it represents no exclusion criterion for either of the two SEM approaches.

The fourth selection criterion regards data assumptions, which differ significantly between the two approaches. In contrast to covariance-based approaches, empirical data in PLS analysis do not have to fulfill criteria of multivariate normality, because the corresponding resampling procedures do not make use of distribution assumptions.[547] This lack of distribution assumptions does not allow PLS to provide a similar range of overall model fit statistics such as the χ^2 goodness-of-fit test used for the evaluation of covariance-based models, nor does it allow assessing the degree of measurement error inherent to the constructs' measurement models. However, as described above, the present data do not fulfill assumptions of multivariate normality so that PLS should be employed.

The fifth selection criterion regards the relationships between the LVs and their respective indicators. As argued in the preceding chapter, covariance-based approaches are typically restricted to a reflective measurement perspective, as formative measurement models do not permit explaining the covariances of all indicators. In contrast, PLS allows modeling both reflective and formative measurement models. However, as no formative LVs are used in this study, this again cannot be considered an exclusion criterion for either SEM approach.

Overall, "LISREL offers statistical precision in the context of stringent assumptions; PLS trades parameter efficiency for prediction accuracy, simplicity, and fewer assumptions."[548] PLS is the preferred approach when (1) the suggested cause-effect-relationships are not underlined by substantive theory, i.e., when theory shall be developed, (2) the sample is relatively small, (3) the model is relatively complex, (4) the data do not satisfy assumptions of multivariate normality, and (5) only formative or formative and reflective measurement models are employed in the study.[549]

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[547] Cf. Chin/Marcolin/Newsted (2003), p. 197.
[548] Fornell/Bookstein (1982), p. 450.
[549] Cf. Chin/Newsted (1999), p. 328.

This research cannot rely on substantive theoretical and empirical knowledge. It is conducted in one company so that the final sample size is limited to 51 cases and the data do not fulfill assumptions of multivariate normality. Criteria 1, 2, and 4 accordingly make PLS the preferred method in this context. As criteria 3 and 5, i.e., model complexity and the measurement perspective, do not represent elimination criteria for either SEM approach in this context, PLS is the preferred method of analysis. Table 23 summarizes the selection criteria and the preferred approach for the present research.

Criterion	**Covariance-Based Approach**	**Partial Least Squares Approach**	**Preferred Approach**
1) Primary Objective	- Parameter-Oriented - Confirmatory Research	- Prediction-Oriented - Exploratory Research	PLS
2) Sample Size Requirements	- 10 to 20 Cases for Each Estimated Parameter - Minimum of 200 Cases	Larger of the Two: - 10* Largest Regression (Number of Exogenous LVs Expected to Load on an Endogenous LV) *or* - 10* Number of Indicators of the Largest Formative LV	PLS
3) Model Complexity	Small to Moderate Complexity	Large Complexity	No Preference
4) Data Assumptions	Typically Multivariate Normal Distribution and Independent Observations (Parametric)	Predictor Specification (Non-Parametric)	PLS
5) Relationships Between LVs and their Indicators	Reflective Measurement Models	Formative and Reflective Measurement Models	No Preference

Table 23: Selection Criteria for the Covariance-Based and the PLS Approach

4.3 Evaluation of Structural Equation Models Using Partial Least Squares

The PLS evaluation focuses on the question of how far the specified models adequately describe the relationships between the manifest variables. Although PLS estimates the structural and the measurement models, the evaluation and interpretation of

the models are typically done sequentially in two steps: First, the measurement models of the reflective or formative latent constructs are evaluated. As no formative constructs are employed in this research, the subsequent explanations will focus on reflective measurement models.[550] Second, the structural model is tested to assess the degree to which the endogenous variables, as measured by the indicator values, explain the variance of the exogenous variables. This two-step procedure ensures that the measures of the LVs are reliable and valid before conclusions are drawn about the relationships between different LVs.

4.3.1 Evaluation of the Measurement Models

When several indicators are used to measure a construct, each of these indicators contains measurement error, i.e., a deviation from its 'true' value.[551] Measurement error has a systematic and a random component. Random error ('noise') is caused by factors that randomly or inconsistently affect measurement of the variable across the sample, i.e., it does not have consistent effects. In contrast, systematic measurement error describes factors that consistently affect measurements across the sample and will equally occur in subsequent measurements. A measure is considered reliable when the random error is zero, and it is considered valid when the systematic error is zero.[552]

Based on these definitions, the literature discusses several criteria for the analysis of reflective measurement models.[553] In PLS analysis, four evaluation criteria can be distinguished: content validity, indicator reliability, convergent validity, and discriminant validity.

Content validity describes the degree to which "[…] a measure adequately captures the content of a construct."[554] As there exist no generally agreed upon statistical measures for the assessment of content validity, some authors note that adequate measure development is important and that the procedures employed for developing new indicators must be deemed acceptable. "Inevitably content validity rests mainly on appeals to

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[550] Cf. chapter D2 for the operationalization of the LVs.
[551] Cf. Viswanathan (2005), p. 3.
[552] Cf. Churchill Jr./Iacobucci (2005), p. 291.
[553] Cf. Churchill Jr. (1979), pp. 68-72. For the evaluation criteria of formative measurement models cf. Götz/Liehr-Gobbers (2004), pp. 728-730.
[554] Viswanathan (2005), p. 18.

reason regarding the adequacy with which important content has been sampled and on the adequacy with which the content has been cast in the form of test items."[555] However, newer research has suggested using the exploratory factor analysis to ensure content validity statistically.[556] It is exercised to discover the underlying factor structure of a measure. Indicators shall be combined to a small number of factors that explain most of the variance observed in a larger number of manifest variables. In contrast to the confirmatory factor analysis, no a priori hypotheses are needed about the factor structure. After the factor analysis, further conclusions can be drawn regarding the reliability and validity of the measurement models.

A detailed description of the exploratory factor analysis is set aside at this point.[557] However, the following methodological aspects are pointed out, as they will subsequently be used in the analysis:

- For an easier interpretation of the factor matrix, a principal component rotation will be employed. As the present research does not assume an independent factor structure, the Direct Oblimin Method is used as it permits any possible angle between the axes.[558]
- The KAISER or eigenvalue criterion is employed to determine the number of factors to be extracted.[559] Following this criterion, the number of factors to be extracted is identical to the number of factors with an eigenvalue greater than or equal to one. The eigenvalues are calculated as the sum of the squared factor loadings of one factor over all variables.[560] Eigenvalues measure the amount of variation in the total sample explained by each factor. An eigenvalue smaller than one would imply that an extracted factor explains less variance than one indicator.

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[555] Nunnally (1978), p. 93

[556] Cf. Tenenhaus et al. (2005), p. 163; Götz/Liehr-Gobbers (2004), p. 727; Weber/Willauer/Schäffer (2003), p. 374.

[557] For a detailed description cf. Backhaus et al. (2006), pp. 259-336; Hüttner/Schwarting (1999).

[558] Cf. Hüttner/Schwarting (1999), p. 397. In contrast, the varimax rotation assumes linear independency between factors. This restriction is considered inapt for this dissertation. However, "[…] if identification of basic structuring of variables into theoretically meaningful subdimensions is the primary concern of the researcher, as is often the case in an exploratory factor analysis, almost any readily available method of rotation will do the job." Kim/Mueller (1978), p. 50.

[559] Cf. Kim/Mueller (1978), p. 43.

[560] Cf. Backhaus et al. (2006), p. 295. The eigenvalues do not represent the percentage of variance explained, but are measures for the amount of variance of the factor in relation to total variance.

- The last criterion used for the evaluation of a factor is the variance extracted. Each factor shall explain at least 50.0 percent of the variance of its indicators.[561]

Individual indicator reliabilities are subsequently assessed. They describe the loadings of the measures with their respective LVs. As the indicator loadings λ are correlations, a common rule of thumb is that more then 50.0 percent of the indicators' variance should be caused by the construct. Indicator loadings of 0.6 or 0.7 and higher are deemed acceptable, as there is more shared variance between the LV and its indicators than error variance.[562] In general, indicators with loadings below 0.4 should be dropped from the measurement model.[563]

Moreover, the significance of the factor loadings needs to be assured. It can be assessed by their respective t-values. In PLS analysis, t-values are calculated based on non-parametric resampling procedures. The common approaches are bootstrapping and jackknifing.[564] The bootstrapping procedure involves drawing repeated samples from the data set with replacement and is regarded as the preferred technique as it produces lower variability in the standard errors than the jackknifing procedure.[565] The t-values of the factor loadings have to equal or exceed the value 1.65 (one-sided test on the five percent significance level).[566]

Convergent (or composite) validity must be assessed in a subsequent step when multiple indicators are used to measure a construct. Convergent validity demands that indicators of the same LV are highly correlated and can be tested using the internal consistency measure of FORNELL/LARCKER (1981) and the average variance extracted for each construct.[567]

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[561] Cf. Homburg/Giering (1998), p. 128.
[562] Cf. Hulland (1999), p. 198; Hoyle (1999), p. 327.
[563] Cf. Hulland (1999), p. 198.
[564] A detailed description of the two approaches is provided by Chin (1998b), pp. 318-320.
[565] Cf. Efron/Gong (1983), p. 38. "Bootstrapping produces samples consisting of the same number of units as in the original sample. The number of resamples has to be specified. The default is 100 but a higher number (such as 200) may lead to more reasonable standard error estimates." Tenenhaus et al. (2005), p. 176.
[566] Cf. Homburg/Giering (1998), p. 125. Statistically significant on the one (five) percent significance level implies an average risk of one (five) in a hundred of dismissing an accurate hypothesis. Cf. Haller/Krauss (2002), p. 2; Schneider/Kornrumpf/Mohr (1993), p. 246.
[567] Cf. Fornell/Larcker (1981), p. 45.

While covariance-based research typically employs Cronbach's Alpha, in PLS research, the internal consistency measure of FORNELL/LARCKER (1981) is deemed superior as it employs the indicator loadings from the causal model and is not positively biased by an increasing number of indicators.[568] Internal consistency can formally be depicted by the following formula:

$$\textit{(D.4)} \qquad \textit{Internal Consistency} = \frac{(\Sigma \lambda_{yi})^2}{(\Sigma \lambda_{yi})^2 + \Sigma \operatorname{var}(\varepsilon_i)}.$$

In equation D.4, λ_i represents the indicator loadings i of a LV and ε_i describes the measurement error of i. The internal consistency of a measurement model can take on values between zero and one. NUNNALLY (1978) views values over 0.7 as acceptable, while BAGOZZI/YI (1988) demand only 0.6.[569] Accordingly, indicators that have a lower correlation with other indicators must be eliminated from the respective measurement model.

The average variance extracted (AVE) describes the average variance that is shared between the LV and its indicators. Originally developed by FORNELL/LARCKER (1981), it is formally calculated by the following formula:

$$\textit{(D.5)} \qquad \textit{Average Variance Extracted} = \frac{\Sigma \lambda_i^2}{\Sigma \lambda_i^2 + \Sigma_i \operatorname{var}(\varepsilon_i)}.$$ [570]

In equation D.5, λ_i depicts the component loading to an indicator and $\operatorname{var}(\in_i) = 1 - \lambda_i^2$. Values of over 0.5 are deemed acceptable as they imply that the average variance shared between a construct and its indicators is greater than the squared correlation between two constructs.[571]

Finally, measurement models need to be tested for discriminant validity, which "[…] represents the extent to which measures of a given construct differ from measures of other constructs in the same model."[572] It can be assessed by comparing the square root

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[568] Cf. Fornell/Larcker (1981), p. 45; further cf. Bagozzi/Yi (1988), p. 82 for the advantages of the internal consistency measure.
[569] Cf. Nunnally (1978), p. 245; Bagozzi/Yi (1988), p. 80.
[570] Here and in the following cf. Fornell/Larcker (1981), pp. 45f.
[571] Cf. Bagozzi/Yi (1988), p. 81; Fornell/Larcker (1981), p. 46.
[572] Hulland (1999), p. 199.

of the AVE of each construct with the correlations between the constructs. A correlation matrix can be used that reflects the square root of the AVE values on the diagonal and the correlations between constructs on the off-diagonal.[573] To ensure adequate discriminate validity, the largest correlation (off-diagonal) should well exceed the lowest square root of AVE (on-diagonal). Table 24 summarizes the PLS evaluation criteria for reflective measurement models.

PLS Evaluation Criteria for Reflective Measurement Models		
1) Content Validity	- Adequate Measure Development and Pretesting - Eigenvalues ≥ 1.0 and Variance Explained ≥ 50.0 Percent (Exploratory Factor Analysis)	
2) Indicator Reliability	Factor Loadings	- $\lambda \geq 0.6$ - t-values ≥ 1.65 (Bootstrapping)
3) Convergent Validity	Internal Consistency	≥ 0.7
	AVE	≥ 0.5
4) Discriminant Validity	Largest Correlation Between Constructs > $\sqrt{AVE}$	

Table 24: PLS Evaluation Criteria for Reflective Measurement Models

4.3.2 Evaluation of the Structural Model

The second step regards the assessment of the structural model. The main evaluation criteria are the multiple squared correlations (R^2), the path coefficients and their significances, the effect sizes (f^2), and the predictive relevance (Q^2).

As shown above, the key purpose of PLS is to reduce error, or, in other words, to maximize the variance explained. The key measure to assess whether the PLS model accomplishes this goal is the R^2 value of the dependent LVs. The R^2 value describes the percentage of variance explained of the dependent LVs. R^2 values can take on values between zero and one. They are interpreted similar to traditional regression analysis. BACKHAUS ET AL. (2006) argue that no generalized claims can be made about a 'good' R^2 value, because each research problem necessitates different classifications.

[573] Cf. Hulland (1999), p. 200.

However, according to CHIN (1998b), R^2 values of 0.19, 0.33, and 0.67 are regarded as weak, average, and strong, respectively.[574]

The stability of the estimates is subsequently tested by the path coefficients and their significance. LOHMÖLLER (1989) accepts paths above 0.1, while CHIN (1998a) argues that "[s]tandardized paths should be at least 0.20 and ideally above 0.30 in order to be considered meaningful."[575] The absolute values of the path coefficients, however, do not allow drawing conclusions about their significance, which is determined by the respective t-values. As previously discussed, PLS determines the t-values based on non-parametric resampling procedures. In this research, the bootstrapping procedure is employed. The t-values of the path coefficients have to exceed the value 1.65 (one-sided test on the five percent significance level).[576] Based on the path coefficients and their t-values, the theoretical propositions can be evaluated. Significant paths, which confirm a priori postulated signs, corroborate the propositions, while non-significant paths or paths with different signs than the ones proposed disapprove the propositions.

In a next step, effect sizes (f^2) can be calculated for the significant paths in order to determine whether the independent LVs have a substantive impact on the dependent LVs.[577] COHEN (1988) recommends using the difference in the squared multiple correlations to calculate an effect size, in which the structural model is initially estimated including (R^2_{incl}) and subsequently estimated excluding (R^2_{excl}) the respective independent LV. Specifically, the effect size can be calculated as follows:

$$f^2 = \frac{R^2_{incl} - R^2_{excl}}{1 - R^2_{incl}}. \qquad (D.6)$$

According to COHEN (1988), effect sizes of 0.02, 0.15, and 0.35 can be interpreted as a small, medium, or large effect.[578]

The final evaluation procedure regards the predictive relevance of the structural model (Q^2). It takes into account methods for cross-validation and uses the results of a sample

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[574] Cf. Backhaus et al. (2006), p. 97; Chin (1998b), p. 323.
[575] Chin (1998a), p. xii; further cf. Lohmöller (1989), pp. 60f.
[576] Cf. Homburg/Giering (1998), p. 125.
[577] Cf. Chin (1998b), p. 316.
[578] Cf. Cohen (1988), p. 413.

reuse technique developed by STONE (1974) and GEISSER (1975).[579] "This technique represents a synthesis of cross-validation and function fitting with the perspective that 'the prediction observables or potential observables is of much greater relevance than the estimation of what are often artificial construct parameter.'[580] The sample reuse technique has been argued as fitting the soft modeling approach of PLS 'like a hand in a glove'."[581]

The appliance of this procedure in PLS is done with the help of the so-called blindfolding procedure that systematically excludes a part of the raw data for a specific block of indicators during parameter estimations. It then attempts to reconstruct the excluded data using the estimated parameters. This process is reiterated until every data point is omitted and reconstructed.[582] The procedure yields "[…] a generalized cross-validation measure and jackknife standard deviations of parameters estimates."[583]

Based on this procedure, the STONE-GEISSER Q^2 can be calculated. It is a measure for the predictive ability of the structural model, i.e., "[w]ithout any loss of freedom, Q^2 represents a measure of how well-observed values are reconstructed by the model and its parameter estimates."[584] It can formally be depicted as follows:

$$Q^2 = 1 - \frac{\sum_D E_D}{\sum_D O_D}. \qquad (D.7)$$

In equation D.7, E represents the sum of squares of prediction errors, O depicts the sum of squares of the difference between the estimated data and the mean of the remaining data from the blindfolding procedure, and D is the omission distance, i.e., the distance between two cases that are consecutively excluded and afterwards estimated.[585] For the calculation of the Q^2 values, CHIN (1998b) recommends:

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[579] Cf. Geisser (1975); Stone (1974).
[580] Geisser (1975), p. 320.
[581] Chin (1998b), p. 317.
[582] Cf. Fornell/Cha (1994), p. 64.
[583] Chin (1998b), p. 317. However, as discussed above, jackknifing standard errors are disregarded in this research. Instead, the more accurate bootstrapping estimates are used.
[584] Chin (1998b), p. 317.
[585] Cf. Götz/Liehr-Gobbers (2004), p. 731.

- "One would use the cross-validated redundancy measure to examine the predictive relevance of one's theoretical/structural model."[586]
- "Furthermore, the choice of the omission distance D need not be large. Experience shows that D from 5 to 10 as long as N is large is feasible."[587]

For interpretation purposes, the structural model generally possesses predictive relevance when Q^2 is larger than zero. In contrast, a value below zero implies that a block of manifest indicators has no predictive relevance and the respective estimation of the LV must be regarded as uncertain. Changes in the Q^2 values can be used to determine the relative predictive relevance of the relationships in the structural model:

(D.8) $$q^2 = \frac{Q^2_{incl} - Q^2_{excl}}{1 - Q^2_{incl}}.$$[588]

Similar to the effect sizes (f^2) above, q^2 values of 0.02, 0.15, and 0.35 are interpreted as small, medium, and large relative predictive relevance. Table 25 summarizes the PLS evaluation criteria for the structural model.

PLS Evaluation Criteria for the Structural Model	
1) Multiple Squared Correlations	$R^2 \geq 0.19$
2) Path Coefficients and their Significances	- Path Coefficients ≥ 0.3 - t-values ≥ 1.65 (Bootstrapping)
3) Effect Sizes	$f^2 \geq 0.02$
4) Predictive Relevance	$Q^2 \geq 0$

Table 25: PLS Evaluation Criteria for the Structural Model

[586] Chin (1998b), p. 318.
[587] Chin (1998b), p. 318. Q^2 values were calculated using Visual PLS, as SmartPLS V2.0 M2 did not offer these applications.
[588] Cf. Chin (1998b), p. 318.

4.3.3 Evaluation of Mediating Effects

The main research model developed in chapter C2 proposes a mediating effect between UEA/UEP and subordinates' performance through subordinates' commitment. Mediation occurs when a causal effect of an independent construct X (i.e., UEA or UEP) on a dependent construct Y (i.e., subordinates' performance) is explained by a mediating construct M (i.e., subordinates' commitment) in a representative sample from a larger population.[589] Figure 9 visualizes a simple trivariate mediating model.

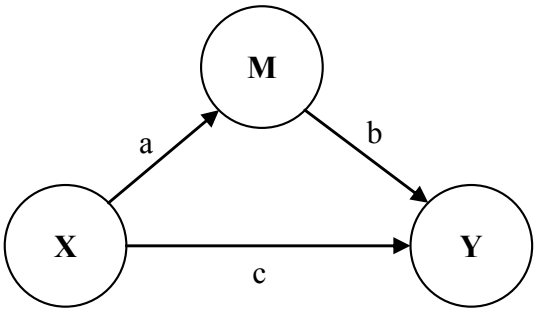

Figure 9: Exemplary Mediating Model[590]

In the above figure, M functions as a mediator when path a and path b are significant and when path c is significantly lower than path c´ in an alternative model without a mediator.[591] Full mediation occurs when path c is non-significant. Otherwise, there is partial mediation.

BARON/KENNY (1986) demand that the paths a, b, and c be tested in separate statistical models. In contrast, IACOBUCCI/DUHACHEK (2003) advise to calculate simultaneously only one model using SEM.[592] They further oppose the use of an alternative model, but rather recommend the SOBEL z-test to indicate whether the mediator M (i.e., subordinates commitment) mediates the relationship between the exogenous construct X (i.e.,

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[589] Cf. Shrout/Bolger (2002), p. 422 and p. 425.
[590] Own compilation.
[591] Cf. Baron/Kenny (1986), p. 1177. More specifically, path c´ refers to the relationship between variables X and Y in an alternative model that has no mediating variable M.
[592] Cf. Iacobucci/Duhachek (2003), p. 7.

UEA and UEP) and the endogenous construct Y (i.e., subordinates' performance).[593] The null hypothesis that no mediation exists can be rejected if the z-value is significant. The z-value is calculated by the following formula:

$$z = \frac{a \times b}{\sqrt{b^2 s_a^2 + a^2 s_b^2}}. \qquad (D.9)$$

In equation D.9, a and b denote the paths from the exogenous to the moderating LV and from the moderating to the endogenous LV, and s_a and s_b are their standard errors.[594] In contrast to covariance-based approaches, the PLS bootstrapping resampling procedure allows applying the z-test to small and moderate sample sizes ranging from 20 to 80 cases.

The magnitude of the mediation can be assessed using the variance accounted for (VAF), which puts the indirect influence of the exogenous LVs (UEA and UEP) on the endogenous LV (subordinates' performance) in relation to its total effect on the endogenous LV.

$$Variance\ Accounted\ For = \frac{a \times b}{(a \times b) + c}. \qquad (D.10)$$

Usually, the VAF takes on values between zero and one, where a value of 0.6, for example, implies that 60 percent of the effect of X on Y are mediated through M. However, if the indirect effect a x b has the opposite sign of the direct effect c, a statistical suppression occurs and the VAF can take on a value larger than one: "In [mediation, P.H.] […], it is typically assumed that the relationship between the independent and the dependent variables […] is reduced because the mediator explains part or all of the relationship… However, it is possible that the statistical removal of a [variable] could increase the magnitude of the relationship between the independent and the dependent variable. Such a change would indicate suppression."[595] SHROUT/BOLGER (2002) recommend "[…] when slight empirical suppression is unexpectedly observed but is not statistically significant […] P_M [i.e., VAF, P.H.] be set at the upper bound of 1.00."[596]

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[593] Cf. Sobel (1982), pp. 292-299.
[594] The values for s_a and s_b are obtained from the PLS bootstrapping report.
[595] MacKinnon/Krull/Lockwood (2000), p. 174.
[596] Shrout/Bolger (2002), p. 434.

4.3.4 Evaluation of Moderating Effects

Moderating or interaction variables are qualitative or quantitative LVs that affect the direction and/or strength of the relation between independent and dependent LVs. As this research analyzes how supervisors' power bases, subordinates' characteristics, and task difficulty moderate the proposed relationships between the informational influence strategies and influence outcomes, in the following, the PLS approach for the analysis of moderating effects will be discussed.

In PLS, moderating effects can be calculated based on the methodology proposed by CHIN/MARCOLIN/NEWSTED (2003).[597] Under this approach, next to the analysis of the direct relationship between exogenous and endogenous LVs, the direct influence of the moderating LVs on the endogenous LVs, as well as the impacts of the interaction terms are evaluated. Figure 10 visualizes a simple theoretical moderating model with reflective LVs.

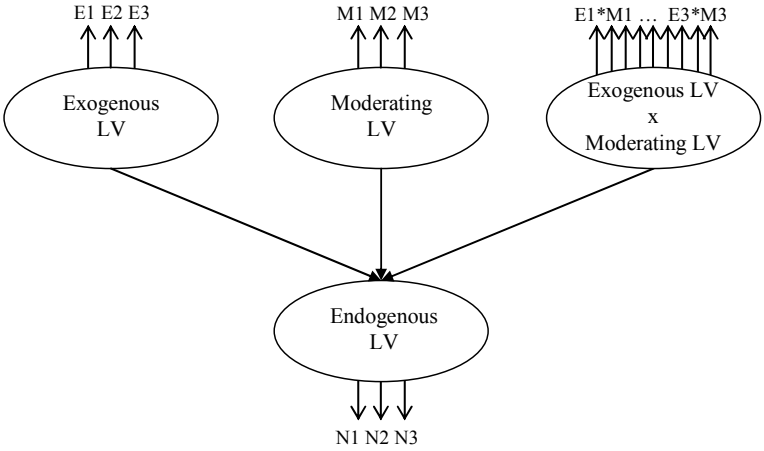

Figure 10: Exemplary Moderating Model[598]

[597] Cf. Chin/Marcolin/Newsted (2003).
[598] Own compilation following Eggert/Fassott/Helm (2005), p. 107.

In Figure 10, the exogenous and endogenous LV can be thought of as independent and dependent LV, respectively. The interaction term is manually calculated by cross-multiplying the standardized indicator values of the reflective exogenous and moderating LV (E x M).[599] Standardizing refers to a process in which product indicators are standardized to a mean of zero and a variance of one. It helps avoiding multicollinearity, which arises due to the cross-multiplication of the indicators.[600] The resulting product indicators are used to represent the latent interaction variable. The LVs and their respective indicators are then submitted to the PLS application, which estimates the complete model. The resultant path a describes the influence of the exogenous LV on the endogenous LV when the interaction LV is zero. The moderating hypothesis is accepted when the path from the interaction LV to the dependent LV is significant.[601] The path coefficient c thus describes the change of the exogenous on the endogenous LV, when the moderator LV changes. Put differently, the effect on a + c changes, when the moderator LV changes by one standard deviation. If path c is non-significant, the main effects for the exogenous (path a) and the moderating (path b) LV are still interpreted as direct effects.

The standard approach for estimating the strength of the moderation involves using the effect size, calculated by the following formula:

$$f^2 = \frac{R^2_{InteractionModel} - R^2_{MainEffectsModel}}{1 - R^2_{MainEffectsModel}}. \qquad (D.11)$$

The effect size contrasts the squared multiple correlation (R^2) for the interaction model containing the interaction variable with the base line or main effects model excluding the interaction term.[602] Again, COHEN's (1988) criteria are used to evaluate the effect size, i.e., values of 0.02, 0.15, and 0.35 are interpreted as a small, medium, or large effect.[603] CHIN/MARCOLIN/NEWSTED (2003) allude to the fact that a small effect size

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[599] Cf. Chin/Marcolin/Newsted (2003), p. 199. Standardizing should be used when no emphasis is given ex-ante to any specific indicator, which is the case in the present research. In contrast, centering only sets product indicators to a mean of one. Centering should only be used to perpetuate the scale metric or if some indicators are deemed more important than others.

[600] This procedure is used for reflective indicators. A corresponding description for formative indicators is provided by Chin/Marcolin/Newsted (2003), Appendix D, p. 11.

[601] Cf. Baron/Kenny (1986), p. 1174.

[602] Cf. Chin/Marcolin/Newsted (2003), p. 195.

[603] Cf. Cohen (1988), p. 413.

does not necessarily imply an unimportant effect: "Even a small interaction effects [sic!] can be meaningful under extreme moderating conditions, if the resulting beta changes are meaningful, then it is important to take these conditions into account."[604]

[604] Chin/Marcolin/Newsted (2003), p. 211.

E Empirical Results

1. Descriptive Statistics

Types of Management Accounting Information Used for Influencing Subordinates

Studies on the use of information vary significantly regarding the specificity of information examined. Some studies analyze the use of information in (functional) fields such as marketing, management accounting, or public policy.[605] They typically do not specify the types of information used for particular purposes such as decision-making or influencing subordinates. In contrast, other studies on the use of information focus directly on specific types of information arguing that they are especially relevant to the respective research context. For instance, they focus on the use of cost accounting, performance measurement, or budgetary information.[606]

This study follows the first approach. It employs a broad definition of management accounting systems, which include types of MAI that are conventionally regarded as outside the domain of this information system.[607] To gain a deeper understanding of the types of MAI that are used by managers for their work in general and for influencing subordinates in particular, internal reporting sheets of ABC were reviewed that specified the types of MAI provided by ABC's formal management accounting system.[608] The document analysis in research phase one allowed predefining answer categories in the questionnaire for 19 types of MAI provided to managers.[609] The corresponding questions asked respondents about the frequency with which the specified types of MAI are used at ABC. Answer categories for each type of MAI ranged from 1 = 'no use', over 2 = 'case-by-case use', to 3 = 'constant use'. Table 26 summarizes the results.

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[605] Cf. Menon/Varadarajan (1992); Pelz (1978).
[606] Cf. Henri (2006b); Karlshaus (2000); Hirst/Baxter (1993); Covaleski/Dirsmith (1983).
[607] Cf. chapter B1.3.1.
[608] Cf. chapter D3.1 for a detailed description of the data collection process.
[609] Cf. Appendix 4 for a copy of the questionnaire.

No.	Type of MAI	Mean	S.D.	Var.	Min.	Max.	Significantly higher ($p \leq 0.05$) than No.(s)
1.	*Budgeting*	2.94	0.24	0.06	2.00	3.00	4.-19.
2.	*Quarterly Report*	2.94	0.24	0.06	2.00	3.00	5.-19.
3.	*Annual Statement*	2.88	0.39	0.15	1.00	3.00	6./8./10.-19.
4.	*Contribution Margin Accounting*	2.80	0.40	0.16	2.00	3.00	11.-19.
5.	*Performance Measurement*	2.78	0.42	0.18	2.00	3.00	11.-19.
6.	*Cash Flow Statement*	2.72	0.57	0.33	1.00	3.00	13.-19.
7.	*Early Risk Warning System*	2.72	0.45	0.21	2.00	3.00	13.-19.
8.	*Full Costing*	2.70	0.51	0.26	1.00	3.00	13.-19.
9.	*Planned Cost Calculation*	2.70	0.54	0.30	1.00	3.00	13.-19.
10.	*Liquidity Analysis*	2.64	0.60	0.36	1.00	3.00	13.-19.
11.	*Investment Appraisal*	2.62	0.53	0.28	1.00	3.00	14.-19.
12.	*Customer / Sales Analysis*	2.48	0.68	0.46	1.00	3.00	14.-19.
13.	*Sales Information System*	2.40	0.70	0.49	1.00	3.00	14.-19.
14.	*Monthly Income Statement*	2.08	0.72	0.52	1.00	3.00	15.-19.
15.	*Environmental Report System*	1.98	0.71	0.51	1.00	3.00	17.-19.
16.	*Target Costing*	1.76	0.69	0.47	1.00	3.00	18.-19.
17.	*Process Costing/ABC*	1.70	0.61	0.38	1.00	3.00	18.-19.
18.	*Production Planning and Control*	1.40	0.61	0.37	1.00	3.00	-
19.	*Customer Life Cycle Costing*	1.32	0.51	0.26	1.00	3.00	-

Table 26: Frequency of Management Accounting Information Use at ABC

In order to analyze potential differences between the means, the Wilcoxon signed-rank test (WSR), a nonparametric alternative to a paired samples t-test was conducted.[610] The WSR's accuracy and resulting informational value are comparable to those of the

[610] The WSR ranks the differences between a single data set of a sample and compares the sum of positive, negative, and equal ranks against a critical value. More specifically, it ranks the absolute differences between two variables and splits the ranks into three groups (negative, positive, and ties). While negative and positive ranks include those cases for which the value of the second variable exceeds or is below the value of the first variable, ties contain cases for which the two variables are equivalent. The pairs are ordered in relation to the absolute values of their differences, and after that, the sum of the ranks of the positive values is compared with the sum of the ranks of the negative values. If the two variables show no particular pattern in their relative behaviors, the positive and negative values should be distributed even through the ranks and consequently the rank-sums should be approximately equal. Distortions between the rank-sums indicate that a variable is significantly different from the other. For a detailed discussion of the WSR cf. Sachs (2006), pp. 411-414; Bortz (2005), pp. 153f. and McClave/Benson/Sincich (2005), pp. 1087f.

t-test.[611] The results of the WSR are shown in the right-hand column of Table 26. As illustrated, respondent managers indicated that budgeting, quarterly report, annual statement, and contribution margin information are most frequently used at ABC. In contrast, production planning and control information as well as information about customer life cycle costing only play a secondary role.

In a subsequent step, as there is no empirical evidence on the types of MAI used for influencing subordinates, respondents were asked about the degree to which their direct supervisors use the specified types of MAI to exercise downward influence. Answer categories ranged from 1 = 'not at all' to 7 = 'very intensively'. Results are provided in Table 27.

No.	Type of MAI	Mean	S.D.	Var.	Min.	Max.	Significantly higher ($p \leq 0.05$) than No.(s)
1.	*Budgeting*	*5.82*	*1.19*	*1.42*	*1.00*	*7.00*	*3.-18.*
2.	*Quarterly Report*	*5.54*	*1.49*	*2.21*	*1.00*	*7.00*	*6.-18.*
3.	*Performance Measurement*	*5.30*	*1.34*	*1.81*	*1.00*	*7.00*	*8.-19.*
4.	*Annual Statement*	*5.20*	*1.65*	*2.73*	*1.00*	*7.00*	*11.-19.*
5.	*Contribution Margin Accounting*	*5.02*	*1.60*	*2.55*	*1.00*	*7.00*	*12.-19.*
6.	*Planned Cost Calculation*	*4.92*	*1.60*	*2.56*	*1.00*	*7.00*	*12.-19.*
7.	*Full Costing*	*4.82*	*1.55*	*2.40*	*1.00*	*7.00*	*14.-19.*
8.	*Investment Appraisal*	*4.82*	*1.56*	*2.44*	*1.00*	*7.00*	*12.-19.*
9.	*Early Risk Warning System*	*4.82*	*1.56*	*2.44*	*1.00*	*7.00*	*12.-19.*
10.	*Customer / Sales Analysis*	*4.80*	*1.73*	*2.98*	*1.00*	*7.00*	*13.-19.*
11.	*Cash Flow Statement*	*4.62*	*1.83*	*3.34*	*1.00*	*7.00*	*14.-19.*
12.	*Liquidity Analysis*	*4.34*	*1.75*	*3.05*	*1.00*	*7.00*	*13.-19.*
13.	*Sales Information System*	*4.28*	*1.80*	*3.23*	*1.00*	*7.00*	*15.-19.*
14.	*Monthly Income Statement*	*3.68*	*1.93*	*3.73*	*1.00*	*7.00*	*16.-19.*
15.	*Target Costing*	*3.10*	*1.93*	*3.72*	*1.00*	*7.00*	*16./18./19.*
16.	*Process Costing/ABC*	*2.80*	*1.70*	*2.90*	*1.00*	*7.00*	*18./19.*
17.	*Environmental Report System*	*2.72*	*1.60*	*2.57*	*1.00*	*7.00*	*18./19.*
18.	*Customer Life Cycle Costing*	*2.08*	*1.52*	*2.32*	*1.00*	*7.00*	-
19.	*Production Planning and Control*	*1.94*	*1.57*	*2.47*	*1.00*	*7.00*	-

Table 27: Types of Management Accounting Information Used at ABC for Influencing Subordinates

[611] Cf. Sachs (2006), p. 411.

Again, the WSR was used to analyze differences between the means, the results of which are shown in the right-hand column of Table 27. Similar to the above results, supervisors were indicated to most frequently use budgeting and quarterly report information to influence subordinates, followed by performance measurement, annual statement, as well as contribution margin information. Customer life cycle costing and production planning and control information are the least employed to exercise downward influence.

Types of Informational Influence Strategy Employed to Influence Subordinates

The above analysis about the types of MAI used by supervisors for influencing subordinates does not allow drawing conclusions about the purposes of information use, i.e., it does not allow answering whether supervisors use UEA or UEP to influence subordinates. The degree to which supervisors employ UEA or UEP was accordingly assessed. Differences between the means were again compared using the WSR. Results indicate that supervisors on both hierarchy levels use UEA significantly more than UEP ($p \leq 0.05$).

2. Causal Model Results

The causal research model and respective propositions were subsequently tested using the PLS approach to SEM as specified in chapter D4.3. Following these specifications, the PLS assessment includes two steps: In the first step, the measurement models of the LVs are evaluated. In the second step, the structural model is tested.

2.1 Measurement Model Results

2.1.1 Main Model

Use of MAI for Influencing ex-ante (UEA)

The exploratory factor analysis yielded a one-factor solution, which explains 67.0 percent of the indicators' variance. Content validity is consequently ensured. In the following indicator reliability assessment, indicator UEA3 was dropped as it has a factor loading of only 0.44, and thus fails to pass this research's conservative threshold of 0.60. As shown in Table 28, the remaining indicators have an average factor loading of

0.91 and are significant on the 0.01 level, signifying high indicator reliability. With an internal reliability of 0.93 and an AVE of 0.82, the LV further shows high convergent validity. Finally, as depicted in the correlation matrix in Table 42 at the end of this chapter, the square root of the AVE for UEA well exceeds all correlations between the other constructs, signifying that the measure is adequately discriminated. In sum, the results indicate a high reliability and validity for the measurement model.

Information on the Indicators of the Construct 'Use of MAI for Influencing ex-ante'						
Indicator	***Factor Loadings*****	***t-values of Factor Loadings***	***Mean*****	***Min*****	***Max*****	***S.D.*****
UEA1	0.92	32.92	4.10	1.00	7.00	1.58
UEA2	0.91	25.29	3.90	1.00	6.00	1.40
(UEA3)	(0.44)	(2.62)	(2.37)	(1.00)	(6.00)	(1.23)
UEA4	0.89	21.48	4.06	1.00	6.00	1.55
Average	**0.91**	**26.56**	**4.10**	**1.00**	**7.00**	**1.58**
Information on the Construct 'Influencing of MAI for Influencing ex-ante'						
Exploratory Factor Analysis (Variance Explained)			0.67			
Internal Reliability			0.93			
Average Variance Extracted			0.82			

* Average factor loadings, means, and S.D.s for each indicator are calculated based on the final indicators. Min and Max refer to actual ranges.
** Indicators in parentheses were dropped for further analysis due to factor loadings ≤ 0.6.

Table 28: Information on the Construct 'Use of MAI for Influencing ex-ante'

Use of MAI for Influencing ex-post (UEP)

The exploratory factor analysis again yielded a one-factor solution, which explains 86.5 percent of the indicators' variance and thus exceeds the minimum threshold of 50.0 percent. Content validity is thus ensured. As shown in Table 29, the factor loadings of the indicators range between 0.89 and 0.95, all significant beyond the 0.01 level. This implies high indicator reliability. Similarly, on the construct level, an internal reliability of 0.96 and an AVE of 0.87 suggest a high composite validity. Discriminant validity is further ensured as the square root of the AVE well surpasses the between-construct-correlations, shown in Table 42. Overall, the results indicate a high reliability and validity of the measurement model.

Information on the Indicators of the Construct 'Use of MAI for Influencing ex-post'						
Indicator	***Factor Loadings****	***t-values of Factor Loadings***	***Mean****	***Min****	***Max****	***S.D.****
UEP1	0.89	15.43	3.57	1.00	6.00	1.32
UEP2	0.95	26.02	3.33	1.00	6.00	1.32
UEP3	0.95	21.98	3.55	1.00	6.00	1.38
UEP4	0.92	24.18	3.59	1.00	6.00	1.33
Average	**0.93**	**21.90**	**3.51**	**1.00**	**6.00**	**1.34**
Information on the Construct 'Use of MAI for Influencing ex-post'						
Exploratory Factor Analysis (Variance Explained)			0.87			
Internal Reliability			0.96			
Average Variance Extracted			0.87			

* Average factor loadings, means, and S.D.s for each indicator are calculated based on the final indicators. Min and Max refer to actual ranges.
** Indicators in parentheses were dropped for further analysis due to factor loadings ≤ 0.6.

Table 29: Information on the Construct 'Use of MAI for Influencing ex-post'

Subordinates' Commitment (SCOM)

The exploratory factor analysis yielded a two-factor solution, in which indicator SCOM2 loads on a different factor and is, therefore, excluded for analysis. The resulting factor explains 61.7 percent of the remaining indicators' variance. As depicted in Table 30, the remaining indicators show high reliability values with an average factor loading of 0.83 and high t-values beyond the 0.01 significance level. Both internal reliability and AVE exceed the minimum evaluation criteria, ensuring adequate composite reliability. Lastly, discriminant validity is assured as the square roots of the AVE exceed the correlations between the constructs, shown in Table 42. In sum, the results indicate high reliability and validity for the measurement model.

Information on the Indicators of the Construct 'Subordinates' Commitment'						
Indicator	***Factor Loadings****	***t-values of Factor Loadings***	***Mean****	***Min****	***Max****	***S.D.****
SCOM1	0.86	23.01	5.65	3.00	7.00	0.93
(SCOM2)	Eliminated					
SCOM3	0.77	13.66	4.96	1.00	7.00	1.26
SCOM4	0.81	13.97	5.02	2.00	7.00	1.30
SCOM5	0.85	16.35	4.88	2.00	7.00	1.34
SCOM6	0.80	12.65	5.39	2.00	7.00	1.33

Information on the Indicators of the Construct 'Subordinates' Commitment' (cont.)						
SCOM7	0.87	22.42	5.45	3.00	7.00	1.08
SCOM8	0.84	15.58	4.69	2.00	7.00	1.46
Average	**0.83**	**16.81**	**5.15**	**1.00**	**7.00**	**1.24**
Information on the Construct 'Subordinates' Commitment'						
Exploratory Factor Analysis (Variance Explained)			0.62			
Internal Reliability			0.94			
Average Variance Extracted			0.69			
* Average factor loadings, means, and S.D.s for each indicator are calculated based on the final indicators. Min and Max refer to actual ranges. ** Indicators in parentheses were dropped for further analysis due to factor loadings ≤ 0.6.						

Table 30: Information on the Construct 'Subordinates' Commitment'

Subordinates' Performance (SPER)

The two indicators measuring subordinates' job performance load on the same factor, which in turn explains 58.8 percent of their variance. Content validity is hence ensured. As depicted in Table 31, factor loadings and their t-values are within satisfactory ranges. A high internal reliability of 0.76 and an acceptable AVE of 0.62 assure composite reliability of the measure. As shown in Table 42, the square root of the AVE exceeds the correlations between the constructs so that discriminant validity is again assured. Overall, the results show a good reliability and validity for the measurement model.

Information on the Indicators of the Construct 'Subordinates' Performance'						
Indicator	***Factor Loadings****	***t-values of Factor Loadings***	***Mean****	***Min****	***Max****	***S.D.****
SPER1	0.72	1.70	0.58	0.00	0.83	0.21
SPER2	0.85	3.73	0.77	0.33	1.00	0.13
Average	**0.78**	**2.72**	**0.67**	**0.00**	**1.00**	**0.17**
Information on the Construct 'Subordinates' Performance'						
Exploratory Factor Analysis (Variance Explained)			0.59			
Internal Reliability			0.76			
Average Variance Extracted			0.62			
* Average factor loadings, means, and S.D.s for each indicator are calculated based on the final indicators. Min and Max refer to actual ranges. ** Indicators in parentheses were dropped for further analysis due to factor loadings ≤ 0.6.						

Table 31: Information on the Construct 'Subordinates' Performance'

2.1.2 Moderating Model

Supervisors' Power Bases

Legitimate Power Base (LEP)

A one-factor solution was extracted that explains 74.5 percent of the indicators' variance. Content validity is consequently ensured. The indicators have high factor loadings and significant t-values so that they are deemed reliable. On the construct level, as depicted in Table 32, the values for internal reliability and AVE surpass all minimum thresholds, ensuring adequate composite reliability. Discriminant validity is also assured as the square root of the AVE exceeds the correlations between the constructs, shown in Table 42. Overall, the results indicate high reliability and validity of the measurement model.

Information on the Indicators of the Construct 'Legitimate Power Base'						
Indicator	***Factor Loadings****	***t-values of Factor Loadings***	***Mean****	***Min****	***Max****	***S.D.****
LEP1	0.94	3.76	0.94	3.76	0.94	3.76
LEP2	0.91	3.99	0.91	3.99	0.91	3.99
LEP3	0.71	2.47	0.71	2.47	0.71	2.47
Average	**0.85**	**3.41**	**0.85**	**1.00**	**7.00**	**3.41**
Information on the Construct 'Legitimate Power Base'						
Exploratory Factor Analysis (Variance Explained)			0.75			
Internal Reliability			0.89			
Average Variance Extracted			0.75			

* Average factor loadings, means, and S.D.s for each indicator are calculated based on the final indicators. Min and Max refer to actual ranges.
** Indicators in parentheses were dropped for further analysis due to factor loadings ≤ 0.6.

Table 32: Information on the Construct 'Legitimate Power Base'

Information Power Base (IFP)

One factor was extracted that explains 67.2 percent of the indicators' variance, well exceeding the required minimum value of 50.0 percent. With a factor loading of only 0.45, IFP2 is excluded for analysis. As this indicator measures general access rights to the management accounting systems and not specifically, as do the other indicators,

the supervisors' vis-à-vis the subordinates' access, this finding is not unsuspected. The indicator was originally kept as the pretest had yielded acceptable results. For the subsequent analysis, IFP3 was further dropped as it fails to surpass the required 0.6 threshold with a factor loading of 0.44. Table 33 shows that the remaining two indicators have high factor loadings with significant t-values, signifying high indicator reliability. The construct has an internal reliability of 0.96 and an AVE of 0.93, signifying high composite validity. As shown in Table 42, the square root of the AVE exceeds the other constructs' correlations, ensuring adequate discriminant validity of the new construct. In sum, the measurement model results are satisfactory.

Information on the Indicators of the Construct 'Information Power Base'						
Indicator	***Factor Loadings*****	***t-values of Factor Loadings***	***Mean*****	***Min*****	***Max*****	***S.D.*****
IFP1	0.96	2.98	3.08	1.00	7.00	2.12
(IFP2)	Eliminated					
(IFP3)	(0.44)	(1.33)	(2.53)	(1.00)	(7.00)	(1.89)
IFP4	0.96	3.20	2.82	1.00	7.00	1.97
Average	**0.96**	**3.09**	**2.95**	**1.00**	**7.00**	**2.04**
Information on the Construct 'Information Power Base'						
Exploratory Factor Analysis (Variance Explained)			0.67			
Internal Reliability			0.96			
Average Variance Extracted			0.93			

* Average factor loadings, means, and S.D.s for each indicator are calculated based on the final indicators. Min and Max refer to actual ranges.
** Indicators in parentheses were dropped for further analysis due to factor loadings ≤ 0.6.

Table 33: Information on the Construct 'Information Power Base'

Impersonal Reward/Coercive Power Base (RCIP)

A one-factor solution was extracted that explains 56.4 percent of the indicators' variance. For the subsequent analysis, RCIP4 and RCIP5 are eliminated, as their factor loadings are below the requested threshold of 0.6. As depicted in Table 34, the remaining indicators have high indicator reliabilities. An internal reliability of 0.68 and an AVE of 0.89 signify adequate composite reliability. As shown in Table 42, the squared root of the AVE exceeds the between-construct-correlations, ensuring adequate discriminate validity. In sum, the measurement model results are satisfactory.

Information on the Indicators of the Construct 'Impersonal Reward/Coercive Power Base'						
Indicator	***Factor Loadings*****	***t-values of Factor Loadings***	***Mean*****	***Min*****	***Max*****	***S.D.*****
RCIP1	0.86	2.68	4.98	1.00	7.00	1.63
RCIP2	0.82	2.94	5.69	1.00	7.00	1.21
RCIP3	0.90	2.89	5.33	2.00	7.00	1.40
(RCIP4)	(0.29)	(0.90)	(5.59)	(3.00)	(7.00)	(1.13)
(RCIP5)	(-0.11)	(0.27)	(5.00)	(1.00)	(7.00)	(1.67)
RCIP6	0.71	2.79	5.69	1.00	7.00	1.14
Average	**0.86**	**2.84**	**5.33**	**1.00**	**7.00**	**1.41**
Information on the Construct 'Impersonal Reward/Coercive Power Base'						
Exploratory Factor Analysis (Variance Explained)			0.56			
Internal Reliability			0.68			
Average Variance Extracted			0.89			

* Average factor loadings, means, and S.D.s for each indicator are calculated based on the final indicators. Min and Max refer to actual ranges.
** Indicators in parentheses are dropped for further analysis due to factor loadings ≤ 0.6.

Table 34: Information on the Construct 'Impersonal Reward/Coercive Power Base'

Personal Reward/Coercive Power Base (RCPP)

The extracted one-factor solution only explains 41.2 percent of the variance of its indicators. This is due to the low factor loadings of the first three indicators. They are subsequently eliminated as they fail to pass the 0.6 threshold. As shown in Table 35, the remaining indicators have high factor loadings and are significant on the 0.01 level. The high internal reliability of 0.85 and the satisfactory AVE of 0.65 ensure adequate composite reliability of the construct. As depicted in Table 42, the square root of the AVE surpasses the correlations between constructs so that adequate discriminate validity is ensured. Overall, the results of the measurement model are satisfactory.

Information on the Indicators of the Construct 'Personal Reward/Coercive Power Base'						
Indicator	***Factor Loadings*****	***t-values of Factor Loadings***	***Mean*****	***Min*****	***Max*****	***S.D.*****
(RCPP1)	(0.41)	(1.38)	(5.92)	(4.00)	(7.00)	(0.91)
(RCPP2)	(-0.18)	(0.63)	(3.12)	(1.00)	(7.00)	(1.45)
(RCPP3)	(0.41)	(1.47)	(4.65)	(2.00)	(7.00)	(1.23)
RCPP4	0.76	4.76	5.39	3.00	7.00	1.00

Information on the Indicators of the Construct 'Personal Reward/Coercive Power Base' (cont.)						
RCPP5	0.78	7.10	5.08	1.00	7.00	1.28
RCPP6	0.88	19.53	4.18	1.00	7.00	1.55
Average	**0.81**	**10.46**	**4.88**	**1.00**	**7.00**	**1.28**
Information on the Construct 'Personal Reward/Coercive Power Base'						
Exploratory Factor Analysis (Variance Explained)			0.41			
Internal Reliability			0.85			
Average Variance Extracted			0.65			
* Average factor loadings, means, and S.D.s for each indicator are calculated based on the final indicators. Min and Max refer to actual ranges. ** Indicators in parentheses are dropped for further analysis due to factor loadings ≤ 0.6.						

Table 35: Information on the Construct 'Personal Reward/Coercive Power Base'

Referent Power Base (REP)

One factor was extracted that explains 85.7 percent of the indicators' variance, signifying high content validity. As shown in Table 36, all factor loadings are above 0.9 and highly significant on the 0.01 level. The internal reliability of 0.96 and the AVE of 0.86 indicate high composite reliability of the construct. As shown in Table 42, the square root of the AVE well exceeds the correlations between the other constructs so that the construct has adequate discriminate validity. Overall, the measurement model results are very good.

Information on the Indicators of the Construct 'Referent Power Base'						
Indicator	***Factor Loadings****	***t-values of Factor Loadings***	***Mean****	***Min****	***Max****	***S.D.****
REP1	0.94	7.26	5.61	3.00	7.00	0.98
REP2	0.92	5.76	5.59	2.00	7.00	1.15
REP3	0.92	6.29	5.53	2.00	7.00	1.05
REP4	0.92	6.74	5.41	2.00	7.00	1.10
Average	**0.93**	**6.51**	**5.53**	**2.00**	**7.00**	**1.07**
Information on the Construct 'Referent Power Base'						
Exploratory Factor Analysis (Variance Explained)			0.86			
Internal Reliability			0.96			
Average Variance Extracted			0.86			
* Average factor loadings, means, and S.D.s for each indicator are calculated based on the final indicators. Min and Max refer to actual ranges. ** Indicators in parentheses are dropped for further analysis due to factor loadings ≤ 0.6.						

Table 36: Information on the Construct 'Referent Power Base'

Expert Power Base (EXP)

The extracted factor explains 73.3 percent of the indicators' variance, implying high content validity. As reported in Table 37, all indicators are highly reliable and significant with an average factor loading of 0.85 and a corresponding average t-value of 5.04. Composite reliability is ensured by the high internal reliability and AVE. Table 42 shows that the square roots of the AVE surpass the correlations between constructs, implying that the construct is adequately discriminated. Overall, the measurement model results are very good.

Information on the Indicators of the Construct 'Expert Power Base'						
Indicator	***Factor Loadings*****	***t-values of Factor Loadings***	***Mean*****	***Min*****	***Max*****	***S.D.*****
EXP1	0.91	5.85	4.88	1.00	7.00	1.44
EXP2	0.81	4.30	4.96	2.00	7.00	1.41
EXP3	0.85	4.61	5.47	1.00	7.00	1.27
EXP4	0.85	5.39	4.61	1.00	7.00	1.56
Average	**0.85**	**5.04**	**4.98**	**1.00**	**7.00**	**1.42**
Information on the Construct 'Expert Power Base'						
Exploratory Factor Analysis (Variance Explained)			0.73			
Internal Reliability			0.92			
Average Variance Extracted			0.73			

* Average factor loadings, means, and S.D.s for each indicator are calculated based on the final indicators. Min and Max refer to actual ranges.
** Indicators in parentheses are dropped for further analysis due to factor loadings ≤ 0.6.

Table 37: Information on the Construct 'Expert Power Base'

Subordinates' Characteristics

Work Locus of Control (WLOC)

The initial exploratory factor analysis yielded a three-factor solution. However, as Factors 2 and 3 had an eigenvalue of only 1.05 and 1.03, respectively, the KAISER criterion was slightly relaxed due to reasons as regards content. The resultant one-factor solution explains 50.9 percent of its indicators' variance. As depicted in Table 38, three indicators were dropped as their factor loadings are well below the 0.6 threshold. The remaining indicators have high and significant factor loadings. On the construct level, an internal reliability of 0.85 and an AVE of 0.65 ensure adequate composite

reliability. Table 42 shows that the square root of the AVE surpasses the correlations between the constructs so that the measure is deemed adequately discriminated. Overall, the results of the measurement model are satisfactory.

Information on the Indicators of the Construct 'Work Locus of Control'						
Indicator	***Factor Loadings****	***t-values of Factor Loadings***	***Mean****	***Min****	***Max****	***S.D.****
WLOC1	0.66	2.89	3.39	1.00	6.00	1.27
(WLOC2)	(0.37)	(1.44)	(2.43)	(1.00)	(5.00)	(0.99)
WLOC3	0.83	7.62	4.33	1.00	7.00	1.23
WLOC4	0.78	3.90	3.02	1.00	7.00	1.29
WLOC5	0.84	5.97	3.63	1.00	7.00	1.34
WLOC6	0.85	5.87	3.39	1.00	7.00	1.46
(WLOC7)	(0.51)	(2.35)	(2.57)	(1.00)	(5.00)	(1.06)
(WLOC8)	(0.51)	(2.08)	(2.27)	(1.00)	(5.00)	(1.00)
Average	**0.66**	**2.89**	**3.39**	**1.00**	**6.00**	**1.27**
Information on the Construct 'Work Locus of Control'						
Exploratory Factor Analysis (Variance Explained)			0.51			
Internal Reliability			0.90			
Average Variance Extracted			0.63			

* Average factor loadings, means, and S.D.s for each indicator are calculated based on the final indicators. Min and Max refer to actual ranges.
** Indicators in parentheses are dropped for further analysis due to factor loadings ≤ 0.6.

Table 38: Information on the Construct 'Work Locus of Control'

Work Self-Efficacy (WSEF)

The extracted factor explains 47.7 percent of the indicators' variance, which is just below the required threshold of 50.0 percent. This is due to the comparatively low factor loadings of the indicators. As depicted in Table 39, the indicators WSEF7 and WSEF8 with factor loadings below 0.6 were eliminated for further analysis. The remaining eight indicators satisfy the required criteria for indicator reliability. The internal reliability of 0.89 and an AVE of 0.51 surpass the required thresholds for composite reliability. Table 42 shows that the square root of the AVE exceeds the correlations between the constructs, assuring discriminate validity. Overall, the results of the measurement model are satisfactory.

Information on the Indicators of the Construct 'Work Self-Efficacy'						
Indicator	***Factor Loadings****	***t-values of Factor Loadings***	***Mean****	***Min****	***Max****	***S.D.****
WSEF1	0.79	8.41	5.53	4.00	7.00	0.73
WSEF2	0.70	5.97	5.45	3.00	7.00	0.90
WSEF3	0.69	5.81	5.24	2.00	7.00	0.97
WSEF4	0.78	5.13	4.78	2.00	7.00	1.06
WSEF5	0.73	4.55	5.51	3.00	7.00	0.83
WSEF6	0.61	2.71	5.47	3.00	7.00	0.81
(WSEF7)	(0.50)	(2.31)	(5.41)	(3.00)	(7.00)	(0.80)
(WSEF8)	(0.51)	(2.89)	(5.31)	(3.00)	(7.00)	(0.81)
WSEF9	0.67	3.91	5.39	3.00	7.00	0.72
WSEF10	0.71	4.57	5.37	3.00	7.00	0.87
Average	**0.71**	**5.13**	**5.34**	**2.00**	**7.00**	**0.86**
Information on the Construct 'Work Self-Efficacy'						
Exploratory Factor Analysis (Variance Explained)			0.48			
Internal Reliability			0.89			
Average Variance Extracted			0.51			

* Average factor loadings, means, and S.D.s for each indicator are calculated based on the final indicators. Min and Max refer to actual ranges.
** Indicators in parentheses are dropped for further analysis due to factor loadings ≤ 0.6.

Table 39: Information on the Construct 'Work Self-Efficacy'

Task Difficulty (TDIF)

The exploratory factor analysis yielded a two-factor solution, in which the second factor had an eigenvalue of only 1.08. Hence, it was decided to relax the KAISER criterion slightly due to reasons as regards content. The resultant one-factor solution explains 42.6 percent of the indicators' variance, which is slightly below the required value of 0.50. This is partly due to low factor loadings of the indicators. TDIF1, TDIF3, and TDIF7 are accordingly eliminated, as they all fail to pass the 0.6 threshold. As depicted in Table 40, the remaining indicators have an average factor loading of 0.79 and an average t-value of 3.22, signifying adequate indicator reliability. The construct further possesses high composite reliability as its internal consistency and AVE exceeds the required minimum values (cf. Table 42). Overall, the results of the measurement model are satisfactory.

Information on the Indicators of the Construct 'Task Difficulty'						
Indicator	***Factor Loadings*****	***t-values of Factor Loadings***	***Mean*****	***Min*****	***Max*****	***S.D.*****
(TDIF1)	(0.56)	(1.83)	(2.65)	(1.00)	(5.00)	(1.23)
TDIF2	0.88	3.85	2.12	1.00	5.00	0.93
(TDIF3)	(0.06)	(0.15)	(3.77)	(1.00)	(7.00)	(1.52)
TDIF4	0.74	3.08	1.94	1.00	5.00	0.99
TDIF5	0.83	3.51	1.90	1.00	5.00	0.90
TDIF6	0.70	2.43	2.84	1.00	6.00	1.39
(TDIF7)	(0.56)	(1.70)	(2.08)	(1.00)	(5.00)	(1.06)
Average	**0.79**	**3.22**	**2.20**	**1.00**	**5.25**	**1.05**
Information on the Construct 'Task Difficulty'						
Exploratory Factor Analysis (Variance Explained)			0.43			
Internal Reliability			0.87			
Average Variance Extracted			0.63			

* Average factor loadings, means, and S.D.s for each indicator are calculated based on the final indicators. Min and Max refer to actual ranges.
** Indicators in parentheses are dropped for further analysis due to factor loadings ≤ 0.6.

Table 40: Information on the Construct 'Task Difficulty'

Table 41 summarizes the main evaluation criteria for the measurement models. Table 42 subsequently depicts the correlation matrix for the measurement models of the LVs.

Latent Variable	Internal Reliability	Average Variance Extracted	Average Factor Loadings	Average t-values of Factor Loadings
UEA	0.93	0.82	0.91	26.56
UEP	0.96	0.86	0.93	21.90
SCOM	0.94	0.69	0.83	16.81
SPER	0.76	0.62	0.78	2.72
LEP	0.89	0.74	0.85	3.41
IFP	0.96	0.93	0.96	3.09
RCIP	0.89	0.68	0.86	2.84
RCPP	0.85	0.65	0.81	10.46
REP	0.96	0.86	0.93	6.51
EXP	0.92	0.73	0.85	5.04
WLOC	0.90	0.63	0.79	5.25
WSEF	0.89	0.51	0.71	5.13
TDIF	0.87	0.63	0.79	3.22

Table 41: Summary Information of the Measurement Model Results

Latent Variable	UEA	UEP	SCOM	SPER	LEP	IFP	RCIP	RCPP	REP	EXP	WLOC	WSEF	TDIF
UEA	**0.91**												
UEP	0.76	**0.93**											
SCOM	0.42	0.17	**0.83**										
SPER	-0.02	-0.12	0.33	**0.79**									
LEP	0.08	0.10	0.19	0.14	**0.86**								
IFP	-0.30	-0.27	0.04	0.02	-	**0.96**							
RCIP	-0.12	-0.12	-0.11	0.05	-	-	**0.82**						
RCPP	0.15	0.20	0.42	0.28	-	-	-	**0.81**					
REP	-0.05	0.07	0.26	0.51	-	-	-	-	**0.93**				
EXP	0.00	0.14	0.21	0.28	-	-	-	-	-	**0.85**			
WLOC	-0.13	0.17	-0.31	-0.21	-	-	-	-	-	-	**0.79**		
WSEF	-0.09	-0.27	0.36	0.24	-	-	-	-	-	-	-	**0.71**	
TDIF	0.15	0.16	-0.16	-0.03	-	-	-	-	-	-	-	-	**0.79**

Bold Numbers on Diagonal are Values for the Square Root of the AVE.

Table 42: Latent Variable Correlation Matrix

2.2 Structural Model Results

The theoretical propositions are tested in the structural model analysis. Recapitulating from chapter D4.3, the following questions are posed and the respective evaluation criteria employed for analysis:[612]

- Can the theoretical propositions be corroborated? The sign, stability, and strength of the estimates are tested by the path coefficients and their significances.
- How much of the variance of the endogenous LVs can be explained by the exogenous LVs and how substantive is the impact of the latter? The key measure to assess the endogenous LVs' variance explained is the squared multiple correlation (R^2). Effect sizes (f^2) are calculated to determine whether the exogenous LVs have a substantive impact on the endogenous LVs.[613]
- Does the structural model possess predictive relevance, i.e., are the exogenous LVs relevant predictors for the endogenous LVs? The predictive relevance of the structural model is assessed by its Q^2 values. The relative predictive ability of each exogenous LV is measured by its q^2 values.

2.2.1 Main Model

2.2.1.1 Relationships Between Using Management Accounting Information for Influencing and Subordinates' Commitment

Proposition P_{1a} postulates a positive impact of UEA on subordinates' commitment. In support of this proposition, the corresponding path coefficient is positive and significant (0.69, $p \leq 0.01$).[614] In contrast, UEP influences subordinates' commitment negatively and significantly (-0.35, $p \leq 0.05$), lending support to proposition P_{1b}. Both path

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[612] Cf. Table 25 in chapter D4.3.2 for a summary of the main PLS evaluation criteria.
[613] Cf. Chin (1998b), p. 316.
[614] The path coefficients' significance was determined by the bootstrapping resampling procedure. As recommended for PLS analysis, 500 resamples were run, simulating a number of 51 cases. Cf. Efron/Gong (1983), p. 38.

coefficients from UEA and UEP to subordinates' commitment exceed the conservative 0.30 threshold postulated by CHIN (1998a) and can thus be considered meaningful.[615]

UEA and UEP conjointly explain 23.2 percent of the variance of subordinates' commitment, which is a satisfactory value for research following a postpositivist knowledge claim, in which a limited number of antecedent LVs is selected. Effect size calculations indicate that UEA exerts a large positive influence ($f^2 = 0.27$) and UEP a small to moderate negative influence ($f^2 = 0.08$) on subordinates' commitment. Ultimately, the structural model has reliable predictive ability as the corresponding Q^2 value exceeds zero ($Q^2 = 0.58$).[616] The relative predictive ability of the two exogenous LVs is low ($q^2 = 0.01$ in both cases). Table 43 summarizes the results.

Exogenous Variable	**Subordinates' Commitment**						
	Paths	**t-values**	**Sign.**	**R^2**	**f^2**	**Q^2**	**q^2**
UEA	0.69	4.61	**	0.23	0.27	0.58	0.01
UEP	-0.35	2.07	*	0.23	0.08	0.58	0.01
**p ≤ 0.05; **p ≤ 0.01; ns = non-significant*							

Table 43: Structural Model Results for the Direct Relationships Between Using MAI for Influencing and Subordinates' Commitment

2.2.1.2 Relationships Between Using Management Accounting Information for Influencing and Subordinates' Performance

In contrast to propositions P_{2a} and P_{2c}, no significant direct impact of UEA (-0.10, non-significant) and UEP (-0.11, non-significant) on subordinates' performance is found. The path coefficient from UEA to subordinates' performance is even negative, contradicting the proposed positive relationship in P_{2a}. Thus, propositions P_{2a} and P_{2b} are not corroborated.

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[615] "Standardized paths should be at least 0.20 and ideally above 0.30 in order to be considered meaningful." Chin (1998a), p. xiii; further cf. Lohmöller (1989), pp. 60f.

[616] As discussed in chapter D4.3.2, Chin (1998b) recommends using an omission distance of five to ten for the blindfolding procedure. Q^2 values were thus calculated with differing omission distances between five and ten. As there were no significant differences, it was decided to use an omission distance of seven for the calculations. Cf. Chin (1998b), p. 318.

In a similar vein, UEA and UEP only explain three percent of the variance of subordinates' performance ($R^2 = 0.03$) and the effect sizes for both UEA and UEP are zero ($f^2 = 0.00$). The Q^2 value exceeds zero indicating general predictive ability of the structural model ($Q^2 = 0.06$). The relative predictive ability of UEA and UEP is low to moderate. Table 44 summarizes the results.

Exogenous Variable	Subordinates' Performance						
	Paths	**t-values**	**Sign.**	**R^2**	**f^2**	**Q^2**	**q^2**
UEA	-0.10	0.41	ns	0.03	0.00	0.06	0.04
UEP	-0.11	0.45	ns	0.03	0.00	0.06	0.04
$*p \leq 0.05$; $**p \leq 0.01$; ns = non-significant							

Table 44: Structural Model Results for the Direct Relationships Between Using MAI for Influencing and Subordinates' Performance

While there exist no significant direct effects of UEA and UEP on subordinates' performance in this sample, propositions P_{2b} and P_{2d} suggest that both influence strategies affect subordinates' performance indirectly through a higher commitment. In other words, subordinates' commitment is assumed to mediate the relationships between the two informational influence strategies and subordinates' performance.

In order to evaluate statistically the degree of a possible mediating effect, z-values were calculated following the procedure of SOBEL (1982).[617] This procedure tests the null hypothesis that no mediating effect exists through subordinates' commitment. The z-values for the relationships UEA – subordinates' commitment – subordinates' performance ($z = 2.30$, $p \leq 0.01$) and UEP – subordinates' commitment – subordinates' performance ($z = 1.67$, $p \leq 0.01$) are significant on the 0.01 level.[618] In both cases, the null hypothesis can be rejected.

The magnitude of the mediation is assessed using the variance accounted for (VAF), which puts the indirect influence of the exogenous variables (i.e., UEA or UEP) on the endogenous variable (i.e., subordinates' performance) in relation to the total effect of the two influence strategies on subordinates' performance. For the relationship UEA –

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[617] Cf. chapter D4.3.3 for a detailed description of the analysis of mediating effects; further cf. Sobel (1982), pp. 292-299.

[618] The values are obtained from the PLS bootstrapping with 500 runs and 51 cases.

subordinates' commitment – subordinates' performance, the VAF has a value of 1.62, which implies a mediation of over 100 percent.[619] This result can be explained by a statistical suppression effect, which occurs because the direct effect of UEA on subordinates' performance and the product of the mediated effects (i.e., UEA on subordinates' commitment and subordinates' commitment on subordinates' performance) have opposite signs. Because only slight empirical suppression is found, following the advice of SHROUT/BOLGER (2002), the VAF is set at the upper limit of 100 percent.[620] The effect is then interpreted as complete mediation, i.e., subordinates' commitment completely mediates the relationship between UEA and subordinates' performance. The VAF for the relationship UEP – subordinates' commitment – subordinates' performance is 0.57, a value implying that subordinates' commitment mediates 57.0 percent of the total effect of UEP on subordinates' performance. In sum, propositions P_{2b} and P_{2d} can be corroborated.

2.2.1.3 Relationship Between Subordinates' Commitment and Subordinates' Performance

Subordinates' commitment is proposed to influence subordinates' performance positively (P_3). The corresponding path coefficient is positive and significant (0.39, $p \leq 0.05$), lending support to P_3. The resulting R^2 of subordinates' performance is 14.5 percent.[621] Again, this can be considered a satisfactory value for research following a postpositivist knowledge claim, in which selected antecedent variables are proposed to affect outcomes. Regarding the effect size, subordinates' commitment has a moderate positive impact on subordinates' performance ($f^2 = 0.14$). The structural model has reliable predictive ability as the corresponding Q^2 value exceeds zero ($Q^2 = 0.58$). The relative predictive ability of subordinates' commitment is low to moderate ($q^2 = 0.04$). Table 45 summarizes the results.

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[619] A value of 1.00 implies a mediation of 100 percent.

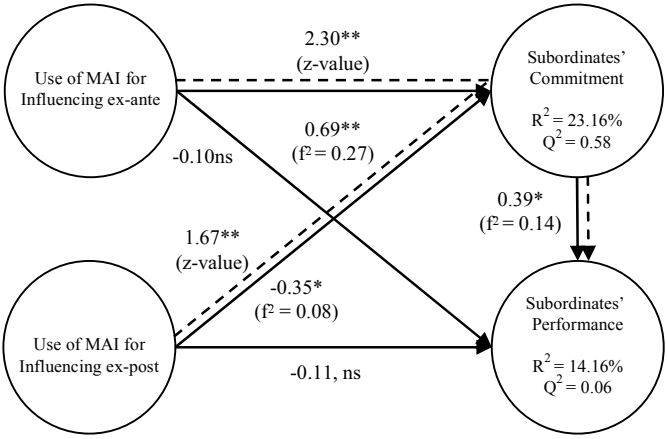
[620] Cf. Shrout/Bolger (2002), p. 434.

[621] These and the following results are based on the relationships between subordinates' commitment and subordinates' performance in the main research model that includes UEA and UEP. The corresponding results for a structural model that only includes subordinates' commitment and subordinates' performance are similar. The path coefficient is positive and significant (0.43, $p \leq 0.01$), and the resultant R^2 for subordinates' performance is 18.1 percent.

Exogenous Variable	Subordinates' Performance						
	Path	**t-value**	**Sign.**	**R^2**	**f^2**	**Q^2**	**q^2**
Subordinates' Commitment	0.39	2.29	*	0.15	0.14	0.06	0.04
**p ≤ 0.05; **p ≤ 0.01; ns = non-significant*							

Table 45: Structural Model Results for the Relationship Between Subordinates' Commitment and Subordinates' Performance

In sum, UEA and UEP directly affect subordinates' commitment to a moderate extent and do not directly influence subordinates' performance in the context of this research. Subordinates' commitment both mediates the performance effects of UEA and UEP, and positively and directly affects subordinates' performance. Figure 11 summarizes the results for the main research model. Direct effects are shown as straight lines, while indirect effects are depicted as dashed lines.



*p ≤ 0.05; **p ≤ 0.01; ns = non-significant

Figure 11: Summary of the Main Model Results[622]

[622] Own compilation.

2.2.2 Moderating Model

As discussed in chapter D4.3.4, the proposed moderating effects of supervisors' power bases, subordinates' characteristics, and task difficulty were calculated based on the methodology proposed by CHIN/MARCOLIN/NEWSTED (2003).[623]

After the evaluation of the measurement models, the interaction terms for all moderating LVs were manually calculated by multiplying the standardized indicator values of the respective exogenous and moderating LVs.[624] The main research model was then separately extended by each moderating LV and its interaction term. This procedure allowed testing each moderating LV individually for its proposed moderating effect on the four relationships between UEA and UEP on the one hand, and subordinates' commitment and performance on the other hand. The moderating hypothesis is accepted when the path from the interaction variable to the dependent variable is significant.[625] If this path is non-significant, the main effects for both the exogenous and the moderating LVs are still interpretable as direct effects.

2.2.2.1 Effects of Supervisors' Power Bases

Relationships Between Using Management Accounting Information for Influencing and Subordinates' Performance

Regarding the moderating role of supervisors' power bases, this study pioneers the analysis of their moderating effects on the relationships between informational influence strategies based on MAI and influence outcomes.

However, in contrast to the propositions, there is only one significant moderating effect of all power base constructs on the relationships between the two influence strategies and subordinates' commitment. The expert power base, which was proposed to moderate the relationship between UEA and subordinates' commitment positively (P_{9a}), moderates it negatively. The path value from the interaction term to subordinates' commitment is negative (-0.26, $p \leq 0.05$), which implies that one standard deviation increase in the expert power base decreases the positive impact of UEA on

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[623] Cf. Chin/Marcolin/Newsted (2003).
[624] The standardizations were executed with SPSS 13.0.
[625] Cf. Baron/Kenny (1986), p. 1174.

subordinates' commitment from 0.70 to 0.44.[626] The resultant R^2 of subordinates' commitment is 34.2 percent, a satisfactory value for only three antecedent variables (UEA, UEP, expert power base). The interaction term has an effect size (f^2) of 0.07, which is between a small and a moderate effect. As the Q^2 value exceeds zero (0.58), the model has high predictive relevance. The relative predictive relevance for the expert power base is low ($q^2 = 0.02$).

As mentioned above, the other power base constructs do not significantly moderate the relationships between UEA or UEP on the one hand, and subordinates' commitment on the other hand. However, the data provide evidence for direct positive effects of the personal reward/coercive base (0.37, $p \leq 0.01$) and referent power base (0.35, $p \leq 0.01$) on subordinates' commitment. The resulting R^2 values for subordinates' commitment are 39.3 and 33.6 percent, respectively. The effect sizes (f^2) are moderate, with values of 0.17 for the personal reward/coercive base and 0.16 for the referent power base. The Q^2 values for each structural model, i.e., the main research model extended by one of these two power bases, are larger than zero, indicating high predictive relevance (0.58 in each model). The relative predictive relevance of the variables is low ($q^2 = 0.02$ for both variables). Detailed results are provided in Appendix 3.

Relationships Between Using Management Accounting Information for Influencing and Subordinates' Performance

In the main model analysis in chapter E2.2.1, the relationships between the two informational influence strategies and subordinates' performance were non-significant. Nonetheless, they are tested for possible moderating effects, as the proposed methodology by CHIN/MARCOLIN/NEWSTED (2003) is able to simultaneously test moderating and direct effects.[627]

Similar to the results of the preceding analysis, most of the power base constructs do not significantly moderate these relationships. Only the expert power base significantly moderates the relationship between UEP and subordinates' performance (-0.38,

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[626] In the moderating model including the expert power base, the standardized path coefficient from UEA to subordinates' commitment is 0.70 ($p \leq 0.01$). It describes the influence of the exogenous variable (in this case UEA) on the endogenous variable (in this case subordinates' commitment), when the interaction variable (in this case expert power) is zero.

[627] Cf. chapter D4.3.4 for the statistical analysis of moderating effects in PLS.

$p \leq 0.05$), which implies that one standard deviation increase in the expert power base decreases the impact of UEP on subordinates' performance from -0.22 to -0.60.[628] However, as the path coefficient from UEP to subordinates' performance in this moderating model remains non-significant (-0.22, non-significant), the moderation itself has no meaningful impact.

The statistical analysis further yields a positive and highly significant direct effect for the referent power base on subordinates' performance (0.38, $p \leq 0.001$). The corresponding effect size (f^2) of 0.20 is moderate to large. The Q^2 value for the resulting structural model is larger than zero (0.06), indicating adequate predictive relevance of the structural model. The relative predictive relevance for the referent power base is low ($q^2 = 0.01$). Detailed statistical results are provided in Appendix 3.

2.2.2.2 Effects of Subordinates' Characteristics

Relationships Between Using Management Accounting Information for Influencing and Subordinates' Commitment

In contrast to the propositions, the statistical analysis provides no support for significant moderating effects subordinates' characteristics, i.e., work locus of control and work self-efficacy, on the relationship between UEA and subordinates' commitment.

Similarly, work self-efficacy does not moderate the relationship between UEP and subordinates' commitment. Only work locus of control negatively and significantly moderates this (-0.14, $p \leq 0.05$). The path value of -0.14 implies that one standard deviation increase in work locus of control (i.e., more external) decreases the impact of UEP on subordinates' commitment from -0.22 to -0.36.[629] The interaction term has a small effect size (f^2) of 0.05. With a Q^2 value larger than zero (0.58), the model has

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[628] In the moderating model including the expert power base, the standardized path coefficient from UEP to subordinates' performance is -0.22 (non-significant). It describes the influence of the exogenous variable (in this case UEP) on the endogenous variable (in this case subordinates' performance) when the interaction variable (in this case expert power) is zero.

[629] The standardized path coefficient from UEP to subordinates' commitment is -0.22 ($p \leq 0.05$) in the moderating model including work locus of control. It describes the influence of the exogenous variable (in this case UEP) on the endogenous variable (in this case subordinates' commitment) when the interaction variable (in this case work locus of control) is zero.

high predictive relevance. The relative predictive relevance for work locus of control is low ($q^2 = 0.01$).

With regard to direct effects, work self-efficacy positively and directly influences subordinates' commitment (0.38, $p \leq 0.01$). Subordinates' commitment has a resultant R^2 of 38.0 percent. The effect size (f^2) is moderate with a value 0.21 and the resultant Q^2 value is larger than zero (0.58), indicating high predictive relevance of the structural model. The relative predictive relevance for work self-efficacy is low ($q^2 = 0.02$). Detailed statistical results are provided in Appendix 3.

Relationships Between Using Management Accounting Information for Influencing and Subordinates' Performance

The statistical analysis does not support a significant moderating effect of subordinates' characteristics on the relationships between UEA or UEP on the hand, and subordinates' performance on the other hand. No significant direct effects are found either. Detailed results are provided in Appendix 3.

2.2.2.3 Effects of Task Difficulty

Relationships Between Using Management Accounting Information for Influencing and Subordinates' Commitment

The statistical analysis does not provide support for a significant moderating effect of task difficulty on the relationships between UEA or UEP on the one hand, and subordinates' commitment on the other hand. Further, there are no significant direct effects of task difficulty on subordinates' commitment. Detailed results are provided in Appendix 3.

Relationships Between Using Management Accounting Information for Influencing and Subordinates' Performance

Similar to the previous analysis, task difficulty does not significantly moderate the suggested relationships between UEA or UEP and subordinates' performance. Since the main model analysis in chapter E2.2.1 yielded no significant relationships between the two informational influence strategies and subordinates' performance, this finding is not unexpected.

However, task difficulty exerts a direct, negative, and significant effect on subordinates' performance (-0.31, $p \leq 0.05$). The resultant R^2 for subordinates' performance is 38.2 percent. The effect size (f^2) is small with a value of 0.09. The Q^2 value is larger than zero (0.58), indicating high predictive relevance of the structural model. The relative predictive relevance for task difficulty is low ($q^2 = 0.001$). Detailed results are provided in Appendix 3.

F Discussion

1. Descriptive Statistics

Types of Management Accounting Information Used for Influencing Subordinates

The following types of MAI play a central role at ABC in general, and for influencing subordinates in particular: budgeting, quarterly report, performance measurement, annual report, and contribution margin information.

Concerning budgeting information, this finding can be attributed to the fact that budgeting is regarded as the "[…] cornerstone of the management control process in nearly all organizations."[630] The annual budget planning emphasizes the top-down, command-and-control orientation, and serves to establish and later preserve power and influence relationships: "The bonds between budgeting and 'politicking' are intimate. Realistic budgets are an expression of practical politics. The allocation of resources necessarily reflects the distribution of power. Budgeting is so basic it must reveal the norms by which men live in a particular political culture – for it is through the choices inherent in limited resources that consensus is established and conflict generated."[631] The interviews with high-level managers and accountants confirmed that budgeting is a particularly important planning tool at ABC that further acts as an influence and communication instrument through which subordinates may acquire more information about their jobs.[632]

Similarly, quarterly report information constitutes an important way in publicly listed companies "[…] to communicate both past events and plans for the future […]."[633] When companies like ABC face changes in their external environment or internal per-

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[630] Hansen/Otley/Van der Stede (2003), p. 95.
[631] Wildavsky (1975), p. xii.
[632] Cf. Chenhall/Brownell (1988), p. 225. The authors are among the first researchers to provide empirical evidence for this relationship. They demonstrate that budgetary participation supports subordinates in getting information, which in turn helps to clarify their functional roles.
[633] Magnusson et al. (2005), p. 562.

formance capabilities, these changes are reflected instantly in their quarterly reports.[634] Accordingly, in contrast to the annual statement, quarterly reports have a short-term perspective, which makes them an important tool for influencing the company's internal planning and control.

Annual reports directly resemble quarterly reports: "They have a similar structure and conventions, and they are read and produced by the same people within the same community. The basic functions of an annual report are similar to those of the quarterly report."[635] The reason why annual statement information comes after quarterly report information is that the latter will materialize in the annual statement with some time lag, which makes the annual statement less applicative as a means of influence. Similarly, changes in short-term expectations as reflected in the quarterly reports will appear in the performance measurement system with some delay.

Finally, contribution margin information is considered key data for decision-making and influence processes in organizations, as it provides vital information about the product's profitability.[636] For interaction and influence processes in organizations, "[…] concepts such as contribution margin […] can become the symbols of a new organisational language."[637]

An interview partner at ABC, who had also taken part in the survey, confirmed and summarized the above findings as follows:

> *"Needless to say, budgeting is the corset that is being put on you. Quarterly reports reflect this budgeting information with a time lag and the same budgets are then used for deriving performance data. This illustrates that the two are closely interrelated. However, they are being used for different purposes: Quarterly reports are typically used in contact with a direct supervisor, who also knows the respective business. In contrast, performance measures are rather employed for*

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634 Since January 1, 2005, pursuant to the stock exchange rules and regulations of the Prime Standard Segment of the German Stock Exchange, quarterly reports have to be prepared in accordance with international reporting standards. ABC prepares its quarterly reports in accordance with the International Financial Reporting Standards (IFRS). The IFRS generally prescribe that quarterly reports should focus on new activities, events, and circumstances that have occurred since the publication of the latest annual financial statements.

635 Magnusson et al. (2005), p. 562.

636 Cf. Busco/Riccaboni/Scapens (2006), pp. 22f.

637 Busco/Riccaboni/Scapens (2006), p. 33.

> *benchmarking the performance of a larger number of organizational subunits. For example, in the case of five, homogenous organizational subunits, one can evaluate them based on performance measures. For the respective supervisor, however, this measure will only be relevant vis-à-vis the same measure of another subunit and not in comparison to quarterly report information. Accordingly, all of these types of information are used, yet all on different levels."*[638]

In contrast to the aforementioned types of MAI, customer life cycle costing and production planning and control information were indicated to be the least frequently used types of information for influencing. As ABC is a sales branch, the fact that production planning and control information was not frequently employed by respondents and by their supervisors was not an unexpected finding. With regard to life cycle costing, DUNK (2004) notes that "[…] although significant benefits are attributed to life cycle cost analysis, there is little evidence regarding the extent of its application in organizational settings."[639] Life cycle costs generally provide companies with benefits such as enhanced planning capabilities or improvements in the estimation of product profitability and were accordingly expected to be vital for a sales branch of a Utility provider.[640] In this research, based on the document analysis that preceded the questionnaire, customers were chosen as cost-driver parameters. As they do not seem to play an important practical role at ABC, it can be concluded that customers are inappropriate cost-driver parameters in the utility sector and accordingly play an inferior role for influence processes. This argument is underlined by a proposition of the Swedish State

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[638] This statement is translated from the original German answer: "Natürlich ist die Budgetierung das Korsett, das einem angelegt wird. Diese Budgetierung wird später wiederum in den Quartalsberichten reflektiert, für welche als Basis für die Kennzahlenermittlung erneut die gleichen Budgets zu Grunde gelegt werden. Dies zeigt, dass beide eng zusammenhängen. Sie werden jedoch unterschiedlich genutzt: Ein Quartalsbericht wird in der Regel im Umgang mit dem direkten Vorgesetzten verwandt, der auch das jeweilige Geschäft kennt, während die Kennzahlen eher im Quervergleich einer größeren Anzahl von Organisationseinheiten benutzt werden. Wenn sie zum Beispiel fünf gleichartige Gesellschaften im Konzern haben, können sie diese natürlich anhand einer Kennzahl bewerten. Dies wird jedoch für den direkten Vorgesetzten auch nur in Relation zu der Bewertung der anderen Einheiten und nicht in Relation zum Quartalsbericht relevant. Folglich werden alle Informationen genutzt, jedoch auf verschiedenen Ebenen."

[639] Dunk (2004), p. 401. "Life Cycle Cost […] of a system (product) is the total cost of acquiring and utilizing a system over its entire life span. LCC includes all costs incurred from the point at which the decision is made to acquire a system, through operational life, to eventual disposal of a system." Elmakis/Lisnianski (2006), p. 6.

[640] Cf. Elmakis/Lisnianski (2006), p. 7.

Power Board, which states that life cycle costs in the utility industry are rather determined by investment, operating, maintenance, and power replacement costs.[641]

Types of Informational Influence Strategy Employed to Influence Subordinates

Respondent managers from ABC work on the first, second, and third hierarchy level and are all budget-responsible. They are typically confronted with more long-term, strategic decisions than low-level managers and expect more opportunities to participate in decision-making. Moreover, the diverse activities on these hierarchy levels require more participation and respective exchange of information. Subsequent interviews, which were conducted with supervisors to understand why they involved subordinates in the decision-making process, confirm these results. An interview partner concluded that he cannot use subordinates, who are not fully involved and know all key issues about the decisions made:

> "*In order to assert decisions, i.e., where I want to go, I cannot use an employee, who is not sufficiently familiar with the key factors that put everything together. I could really only employ him as a bookkeeper. This unavoidably leads me to sail near the wind and openly disclose discrete information. I do not see an alternative to this, as my employees need data to run their business."*[642]

From the point of view of the respective supervisors at ABC, it is also reasonable to make more use of UEA, as subordinates oftentimes have more insights and expertise on their specialized job activities, which can improve the quality and feasibility of the decisions. What adds to this interpretation is the fact that the required amount of expert knowledge to make and simply assert decisions cannot be possessed in detail by top-level management.

> *"When you talk about 'participation in decision-making' – that sounds as if he [i.e., the supervisor, P.H.] could walk without us. If we do not provide the basic*

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[641] Cf. Dhillon (1989), p. 247

[642] This statement is translated from the original German answer: "Um Entscheidungen zu treffen, d.h. wo ich hin will, kann ich fast keinen Mitarbeiter gebrauchen, der nicht hinreichend im Bilde über die Schlüsselfaktoren, die das Ganze zusammenfassen, ist. Den könnte ich sonst tatsächlich nur noch als Buchführer einsetzen. Das führt dazu, dass ich zwangsläufig eine Menge sehr diskreter Informationen an der verantwortbaren Grenze offen weitergebe. Ich sehe da auch keine andere Chance, da die Mitarbeiter die Daten benötigen, mit denen sie das Geschäft steuern können."

> *information, he cannot decide anything. There are only very few decisions in my area of responsibility that could be made without a profound analysis. My supervisor is not able to do that."*[643]

Thus, a more participative use of MAI is a reasonable finding. It moreover confirms prior research on the relationship between hierarchical structure and leadership behavior. In an empirical study by BLANKENSHIP/MILES (1968), high-level subordinate managers report greater freedom in making decisions and higher levels of participation than low-level subordinate managers do.[644] Similarly, JAGO/VROOM (1977) compare self-reported data from managers on four hierarchy levels and report that managers at higher organizational levels have "[…] a greater propensity for use of participative methods […]. Subordinate descriptions of their immediate supervisors further support this relationship."[645] YUKL/FU (1999) find that supervisors use consultation, "[…] which involves getting ideas and concerns from subordinates before making a decision"[646], significantly more with subordinates that hold a management position themselves.

When interpreting the descriptive results, one needs to consider that some aspects may potentially affect the validity of the conclusions. First, respondents may not have been able to evaluate the types of MAI and informational influence strategies used by their supervisors accurately and unbiasedly. In evaluating the informational influence strategies employed by their supervisors, subordinates focused on situations that had taken place in the past and that had resulted in certain outcomes. This may have caused a retrospection bias in the answers.[647] Further, as argued in chapter D3.2, respondents may have wanted to maintain consistency in their answers.[648]

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[643] This statement is translated from the original German answer: "Wenn Sie von 'in den Entscheidungsprozess involvieren' sprechen – das klingt so, als ob der [d.h., der Vorgesetzte, P.H.] ohne uns laufen könnte. Wenn wir die Basisinformationen nicht liefern, dann kann er nichts entscheiden. Es gibt wenige Entscheidungen in meinem Verantwortungsbereich, die ohne eine fundierte Analyse gemacht werden könnten. Dazu ist mein Vorgesetzter nicht in der Lage."

[644] Cf. Blankenship/Miles (1968), p. 114.

[645] Jago/Vroom (1977), p. 131.

[646] Yukl/Fu (1999), p. 219.

[647] Cf. Golden (1992), p. 848.

[648] This is referred to as consistency motive. Cf. Podsakoff et al. (2003), p. 881.

2. Structural Model Results

2.1 Main Model

2.1.1 Relationships Between Using Management Accounting Information for Influencing and Subordinates' Commitment

Prior research on the use of information did not distinguish between different modes in which MAI can be used to influence subordinates.[649] The results of this research highlight the fact that MAI can be used in different ways to influence subordinates and that the proposed uses significantly differ in their effect on subordinates' commitment. While a more participative use of MAI by means of UEA significantly increases subordinates' commitment, a more authoritative use of MAI through UEP has the opposite effect.

In shaping subordinates' commitment by using UEA, supervisors perform a particularly important function. When subordinates are being granted decision rights and are provided with vital MAI that they cannot access on their own, they will better identify and internalize the decisions and will likely return this 'leap of faith' with a greater commitment towards achieving organizational objectives.[650] In other words, when supervisors employ UEA, subordinates perceive that they are treated well by the organization and develop a relationship with their organization that is parallel to the relationships with their direct supervisors.[651] In contrast, when supervisors employ UEP to assert decisions, subordinates will feel restrained in their ability to contribute to decision-making, thereby lowering their commitment. With reference to prior social psychology research on the outcomes of influence strategies, the present results support these findings also for the use of MAI that rational influence strategies positively affect subordinates' commitment, whereas more authoritative or coercive influence strategies have the opposite effect.[652]

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[649] Cf. chapter B1.3.2.1 for a detailed review.
[650] Cf. Settoon/Bennett/Liden (1996), p. 219; Eisenberger/Fasolo/Davis-LaMastro (1990), p. 51; Rhodes/Steers (1981), p. 1020.
[651] Cf. Levinson (1965), pp. 386f.
[652] Cf. Yukl/Kim/Falbe (1996), p. 313; further cf. chapter B1.2.

While research on leadership states that an increase in size and formality of the organizations is accompanied by a more centralized decision-making process,[653] the above findings point to the normative conclusion that supervisors should employ UEA more than UEP in this research context. A probable explanation for this conclusion is the higher intensity of competition on the German utility market that has caused a reversal from a predominantly technical to a more market-oriented management approach. In this changed business environment, a more substantial use of MAI in decision-making and influence processes has gained additional importance. An interview partner at ABC with over 25 years of work experience in the company described the change as follows:

> *"My early time [at ABC, P.H.] was shaped by the fact that the Technics Department constructed its net and, at the end of the year, the Accounting Department pulled everything together and ascertained that we again closed with a surplus. There was no need for controllers. If the Accounting Department had asked in advance, we would have said: 'Keep quiet. You may count again at the end of the year and a surplus will remain.' Or: 'This year, we will do approximately the same thing, you may then count again, and it will work out.' […] The world after that was much more sales- and market-oriented. One had to fight for market share. […] As surplus productions increased and supplies could not be sold at adequate prices, the necessity to approach things from a much more business-related perspective arose. […] Forecasts have gained a completely new meaning, as for each quarterly report meeting and for each medium term plan, I have to assess in how far the starting conditions have changed."*[654]

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[653] Cf. Connor (1992), pp. 226-228.

[654] This statement is translated from the original German answer: "Meine erste Zeit [bei ABC, P.H.] war geprägt dadurch, dass die Technik ihr Netz aufbaute und am Ende des Jahres das Rechnungswesen alles zusammenzog und feststellte, dass wir wieder mit einem Überschuss herauskamen. Die Controller brauchte man nicht. Wenn das Rechnungswesen im Vorhinein gefragt hätte, hätten wir gesagt: 'Seid ruhig, Ende des Jahres könnt Ihr wieder zählen, es kommt genug raus.' Oder: 'Wir machen dieses Jahr wieder ungefähr das Gleiche, dann könnt Ihr wieder nachzählen, es klappt!' […] Die Welt danach war viel stärker vertriebs- und marktorientiert. Man musste um Marktanteile kämpfen. […] Weil die Überproduktionen größer wurden und die Angebote nicht zu vernünftigen Preisen auf den Markt zu bringen waren, ist die Notwendigkeit entstanden, wesentlich kaufmännischer an die Sache ranzugehen […] Die Prognosen haben eine ganz andere Bedeutung gewonnen, weil ich mir jedes Mal überlegen muss, für jedes Quartalsberichtstreffen, für jede Mittelfristplanung, ob und inwieweit sich die Startbedingungen geändert haben."

In this changed environment, the amount of required expert knowledge to make and simply assert decisions based on MAI can hardly be possessed in detail by top-management. This consequently precludes supervisors from only using preset rules and operating procedures and simply asserting decisions with MAI using UEP. Instead, the changed market environment fosters supervisors' need to process and discuss MAI participatively to encourage subordinates' commitment. Furthermore, this enables supervisors to benefit from the expertise of their subordinates.[655]

2.1.2 Relationships Between Using Management Accounting Information for Influencing and Subordinates' Performance

The proposed direct effect of the two informational influence strategies, UEA and UEP, on subordinates' performance cannot be substantiated by the statistical data. Instead, the effects on performance are mediated through subordinates' commitment.

Studies on the outcomes of influence strategies contend that improving subordinates' performance is the most often-cited downward influence objective reported by supervisors.[656] Similarly, research on participative management suggests positive correlations, but many findings are non-significant or small in size. As "[p]articipation's effects appear to be strengthened by greater information impactedness, or conditions in which only a few individuals possess needed information […]"[657], this research expected that UEA directly affects subordinates' performance. It was argued that the participative exchange of MAI would help to clarify the goals and solution strategies of particular tasks. UEP would, in contrast, not allow subordinates to obtain a clearer understanding of the related decision processes, which would be detrimental to their performance.

The fact that UEA and UEP do not directly affect subordinates' performance in the present research context can be attributed to ABC's business environment. The German utility market has become much more competitive during the last decade. In

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[655] This aspect leads to the question about the 'optimal' degree to which supervisors can and should be informed about the operative businesses of their subordinates. However, this discussion is outside the scope of this research. For a discussion of top-level managers' information needs and the implications for management accounting cf. Mendoza/Bescos (2001).

[656] Cf. Yukl/Falbe (1990), pp. 136f.; Kipnis/Schmidt/Wilkinson (1980), p. 441.

[657] Wagner III (2000), p. 308.

1997, the guideline to the deregulation of the German utility market cancelled area monopolies around final customers and, for the first time, enabled a direct competition. The rules in the utility market, redefined thereby, effected not only an increase in competition, but fostered a reversal from a predominantly technical to a more market-oriented management in which the qualified use of MAI became a key success factor. The changed environment caused a higher uncertainty and forced ABC to substantiate decisions more proficiently by using MAI. Despite these fundamental changes, ABC's business model is still characterized by long-term operations with many dependencies involving juridical, governmental, and especially technical concerns. Many internal decisions and corresponding influence processes are based on and involve technical and engineering information that ultimately determine performance, but are not captured by the formal management accounting system. An interview partner confirmed:

> *"The management of a household on the basis of controlling information [at ABC, P.H.] does not work well. When I initiate an effectively content-based and technical management, I have to internally use technical data. But I quarterly manage all external matters with the data from asset accounting in order to be congruent with group reporting and conform to regulatory net quantities and costs."*[658]

Similarly, another interview partner at ABC reported that technical information determines influence processes:

> *"The assertion of decisions is determined by the technology. Initially, the Technics Department makes a statement: 'We will proceed in this direction and not the other one.' In doing so, we have to guarantee uninterrupted service. When that is ensured, we will receive money, no matter what. Controlling is secondary in these situations."*[659]

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[658] This statement is translated from the original German answer: "Das Management eines Haushalts auf Basis von Controllinginformationen funktioniert nicht gut. Wenn ich die tatsächlich inhaltlich-technische Steuerung initiiere, muss ich auch intern auf technische Daten zurückgreifen. Aber die externen Sachen regle ich quartalsweise mit den Daten der Anlagenbuchhaltung, um sowohl mit dem Konzernberichtswesen deckungsgleich zu sein, als auch den regulatorischen Netzmengen und Netzkosten zu entsprechen."

[659] This statement is translated from the original German answer: "Das Durchsetzen von Entscheidungen bedingt die Technik. Erstmal sagt die Technik: 'In diese Richtung gehen wir, in diese gehen wir nicht.' Wir müssen zudem die Versorgungssicherheit gewährleisten. Und wenn das gewährleistet ist, dann bekommen wir das Geld, egal wie. Da ist das Controlling zweitrangig."

In view of the important, but often supplementary role of MAI at ABC, the non-significant direct relationships may be explained by the fact that subordinates' performance is a multidimensional construct, which is determined by many factors outside the domain of the two identified informational influence strategies UEA and UEP: "The basic problem in any description and analysis of management performance lies in the determination of which dimensions to use."[660] A more specific performance measure such as task performance in situations specifically related to MAI should thus be employed in future studies.[661]

Next to the direct relationships, UEA and UEP were suggested to indirectly affect subordinates' performance through a higher or lower commitment. The statistical analysis confirms the propositions. These results suggest that the relationships between informational influence strategies based on MAI and subordinates' performance are more complex than proposed by many studies in social psychology research and research on the use of information, which posit direct associations between those constructs.[662] Furthermore, in the present research context, managers concerned with employees' performance should focus their informational influencing efforts on gaining subordinates' commitment. An increase in subordinates' performance cannot be achieved directly by using MAI for influencing, regardless of the way in which that information is used. Subordinates' performance can rather be affected through a motivational process induced by the use of UEA.

2.1.3 Relationship Between Subordinates' Commitment and Subordinates' Performance

The last main model proposition stated that subordinates' commitment would positively affect subordinates' performance, which was supported by the empirical data.

A recent stream of commitment research challenges the ability of organizational commitment to predict job performance arguing that supervisors are the ones to set performance standards and to "[…] provide the most salient commitment focus when pre-

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[660] Mahoney/Jerdee/Carroll (1965), p. 98.
[661] For a discussion of different levels of analysis cf. Klein/Dansereau (1994).
[662] Cf. Henri (2006a), p. 544.

diction of job performance is at stake."[663] However, this research argues that subordinates develop a relationship with the organization that is parallel to the relationships with their direct supervisors.[664] This was confirmed by an interview partner, who reported that he does not distinguish between commitment to the organization and commitment to the supervisor:

> *"Formally, the company for me is the supervisor. The company says: 'This is your supervisor.' So there is the end of the discussion within the scope of my reporting obligation. But this does not mean that one plays against the company, only because one is loyal towards his supervisor. There has to be a balance towards the company's interests."*[665]

Furthermore, the results show for the present sample of high-level managers that those employees, who have internalized organizational values and are accordingly highly committed to the organization, are more motivated to achieve best possible results and consequently perform better in their jobs.[666]

2.2 Moderating Model

2.2.1 Methodological Considerations

The few significant moderating effects of supervisors' power bases, subordinates' characteristics, and task difficulty can be attributed to methodological aspects that are related to the small sample size of this research. As this aspect regards the analysis of all moderating variables, it precedes the following content-related discussion of the moderating model.

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[663] Vandenberghe/Bentein/Stinglhamber (2004), p. 60.
[664] Cf. Levinson (1965), pp. 386f.
[665] This statement is translated from the original German answer: "Formal ist das Unternehmen für mich der Vorgesetzte. Das Unternehmen sagt: 'Das ist Dein Vorgesetzter.' Damit ist im Rahmen meiner Berichtspflicht Ende der Diskussion. Nur bedeutet das nicht, dass man gegen das Unternehmen spielt, weil man seinem Vorgesetzten gegenüber loyal ist. Da muss eine Ausgewogenheit gegenüber den Unternehmensinteressen sein."
[666] Cf. Meyer/Allen (1997), pp. 24f.

Moderating effects were tested using the PLS product indicator approach by CHIN/MARCOLIN/NEWSTED (2003).[667] In contrast to 'traditional' methods for detecting moderating effects such as multivariate regression analysis[668] or ANOVA[669], which assume error-free measurement, this approach allows to include measurement error. Thus, it avoids the problems of biased and inconsistent coefficient estimates in conjunction with a lower statistical power when the reliability of the constructs declines.[670] Accordingly, while 'true' path coefficients are often attenuated under the assumptions of error-free measurement, the results of the PLS product indicator are closer to 'true' path score estimation.[671]

Despite these advantages of the PLS approach, its requirements for detecting a significant moderating effect in the first place are high. CHIN/MARCOLIN/NEWSTED's (2003) Monte Carlo simulation with an artificial data set shows that an "[…] appropriate detection of interaction terms require[s, P.H.] sample sizes of 100-150 and 4 indicators for each predictor and moderator constructs."[672] While this research has an average of four indicators per construct, the sample size of 51 is much lower than the required 100-150 cases. However, the authors contend that the above threshold values may be relaxed when individual indicator reliabilities (i.e., factor loadings) surpass 0.7.[673] In this research, the average factor loadings of the main model LVs range between 0.78 and 0.93 and those of the moderating model LVs vary between 0.71 and 0.96.[674]

Therefore, while a higher sample size with more indicators per construct would have facilitated the identification of moderating effects, it can be concluded for the follow-

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667 Cf. Chin/Marcolin/Newsted (2003), pp. 202-204.
668 Detailed descriptions of the moderated regression analysis are provided by Jaccard/Turrisi (2003); Hartmann/Moers (2003).
669 ANOVA stands for 'analysis of variance'. A detailed description is provided by Hair Jr. et al. (2005).
670 Cf. Chin/Marcolin/Newsted (2003), pp. 191f.
671 In a Monte Carlo analysis that generates simulated data for ex-ante defined path coefficients in a structural model, Chin/Marcolin/Newsted (2003) provide statistical evidence for this reasoning. In a scenario with a sample size of 50 cases (closely resembling the present sample with 51 cases), the path coefficients of the single-indicator regression deviate from the true score estimation by 65.3 percent. In contrast, the path coefficients of the PLS approach only deviate by 8.66 percent from the ex-ante defined true scores in the same sample with an average of four indicators. Cf. Chin/Marcolin/Newsted (2003), pp. 203f.
672 Chin/Marcolin/Newsted (2003), p. 203.
673 Cf. Chin/Marcolin/Newsted (2003), p. 210.
674 Cf. Table 41.

ing discussion that the few detected moderating results within this small sample are robust and possess a relatively high accuracy in the estimation of 'true' parameter estimates. Nevertheless, due to the small sample size and the focus on only one company, caution is needed in generalizing the results.

2.2.2 Effects of Supervisors' Power Bases

Regarding supervisors' power bases, this study pioneers the analysis of their moderating effects on the relationships between informational influence strategies and influence outcomes. The major, unanticipated result of the structural model analysis is that almost no power base construct moderates the suggested relationships.

Effects on the Relationships Between Using Management Accounting Information for Influencing and Subordinates' Commitment

Concerning subordinates' commitment as outcome variable, only the expert power base is found to negatively and significantly moderate the path from UEA. This counterintuitive finding contradicts proposition P_{9a}. It further indicates that subordinates in the present research context develop a lower commitment, albeit still positive, when supervisors, who they perceive to be professionally competent and knowledgeable, use UEA to influence them.

In this research, expert power was earlier defined as supervisors' job-related expertise, but was not specifically defined as expertise in management accounting. In the case of a positive Halo effect, subordinates subconsciously ascribe a 'general' expert power of their supervisors to other areas, in which their supervisors are not as well informed, such as management accounting.[675] However, the findings of this research rather point to the conclusion that "[…] expert power is limited to the area in which the influencer has special knowledge or skills."[676] Hence, when supervisors, who are seen as 'general' experts on the job, but are not perceived to be experts in management accounting, only rely on MAI in influence processes, it comes to a negative expert power that sets up "[…] a force opposite to the influence attempt."[677] In this case, even when the con-

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[675] Cf. O'Donnell/Schultz Jr. (2005), p. 925. For a detailed description of the Halo effect cf. chapter C3.1.
[676] Busch/Wilson (1976), p. 4.
[677] French Jr./Raven (1959), p. 164.

tent of the decision is regarded favorable by subordinates, the negative expert power arouses resistance and there is "[…] little change in the subjects' opinions."[678]

This is further emphasized by the technically-oriented environment of ABC, in which the majority of the decisions and related influence processes involve a technical component related to the provision of utility and/or utility network. While the interviews showed that these decisions have to include calculations and estimations based on the MAI provided, the arguments for or against a decision have to be substantiated from a technical and/or engineering point of view. When supervisors thus only rely on MAI to substantiate decisions, they create a sense of uncertainty that may cause the decrease in subordinates' commitment. This is ultimately enhanced by the fact that respondents (i.e., subordinates) are themselves more knowledgeable in the operative business than their supervisors and social psychology has suggested that "[t]he effect of the communicator's expertise will obtain only if the person to whom the communication is addressed lacks in expertise."[679]

Finally, the mere use of MAI in this technical environment may lead to an effect that psychologists have named source ambiguity, which occurs in situations where the sources of influence are believed to omit part of the required information.[680] Accordingly, the negative moderating effect of the expert power base can be attributed to the resulting suspicion when supervisors only rely on MAI in influence processes.

Effects on the Relationships Between Using Management Accounting Information for Influencing and Subordinates' Performance

With regard to subordinates' performance as outcome variable, only the expert power base is found to negatively and significantly moderate the path from UEP. However, the moderation itself has no meaningful impact, as the path coefficient from UEP to subordinates' performance remains non-significant. The other results indicating no significant moderating impact of the power base constructs are not unexpected, as the

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[678] French Jr./Raven (1959), p. 164.
[679] Friedland (1976), p. 554 and the literature cited there.
[680] Cf. Smithson (1999), pp. 182f. The term ambiguity is not consistently used in the field of psychology, oftentimes being equated with vagueness. In an early reference, Black (1937) refers to these terms as conditions, under which one reference point can have several potential interpretations. Cf. Black (1937), p. 431.

main model analysis in chapter E2.2.1.2 already yielded no significant relationships between the two informational influence strategies and subordinates' performance.

Direct Effects on Subordinates' Commitment and Subordinates' Performance

Parallel to the identification of moderating effects, the PLS product indicator approach allows the analysis of direct effects of the proposed moderating variables on influence outcomes. Results indicate positive and significant effects of the referent power base on subordinates' commitment and performance and of the personal reward/coercive power base on subordinates' commitment. All impersonal power bases do not directly affect influence outcomes in the present research context. Hence, supervisors need to be aware of the social power relationships present in the organization, as their attributed power bases can directly affect subordinates' attitudes and behaviors, independent of the informational influence strategies they employ.[681] Although ABC is a large and formalized company with clear hierarchical structures that put emphasis on formal power bases, impersonal power bases do not allow supervisors to shape subordinates' commitment and performance successfully and should thus be de-emphasized. In contrast, referent and personal reward/coercive power bases enhance supervisors' ability to gain cooperation from subordinates.

Referent power or charisma was earlier characterized as a personal power base describing certain qualities of supervisors that create a feeling of identification and trust among subordinates.[682] Accordingly, its positive direct effects on subordinates' commitment and performance suggest for the present research that supervisors with a high referent power are appealing characters, whose "[…] magnetic personalities and dynamic speaking skills motivate followers to achieve high levels of performance […]."[683] An interview partner confirmed that ABC's CEO has developed a culture of mutual trust, in which subordinates readily follow and respect their supervisors. He specifically remarked:

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[681] Cf. Rahim et al. (1999), p. 340; Rahim/Psenicka (1996), p. 42.

[682] As previously discussed in chapter C3.1, "[…] criterion-related validities showed little justification for making a distinction between referent power and charisma when defined as actor characteristics." Yukl/Falbe (1991), p. 422.

[683] Jung/Sosik (2006), p. 12.

> *"I certainly have a CEO [at ABC, P.H.], who is absolutely authentic. Where the question arises how one can become a CEO while being so authentic. That does not fit in today's environment."*[684]

While this statement in isolation only relates to the CEO of ABC, prior research on leadership has suggested that the perception of supervisors' referent power oftentimes cascades to their subordinates.[685] Put differently, "[…] if managers at one echelon tend to demonstrate charismatic leadership, we are likely to see similar leadership qualities at lower echelons."[686] This can again be confirmed for ABC:

> *"In this subsidiary, our CEO has established a system of mutual trust that is above average. […] In principle, personal security and personal culture are here well above average. And the faith in the fact that nobody looses their jobs when they say a wrong word has consequences. You can tell that."*[687]

Similar to the results of this research, strategic management and social psychology research consistently report positive and direct effects of supervisors' personal power bases on subordinates' commitment and performance.[688] These studies argue that a charismatic supervisor tends "[…] to engage in personal image-building that produces favorable perceptions of himself/herself on the part of followers. These favorable perceptions enhance the leader's role modeling, motive arousal of followers, and dynamic communication activities, which produce favorable outcomes for followers […]."[689]

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[684] This statement is translated from the original German answer: "Ich habe sicherlich einen Geschäftsführer, der absolut authentisch ist. Wo man sich fragen kann, wie man Geschäftsführer wird, wenn man so authentisch ist. Passt eigentlich gar nicht in die heutige Zeit."

[685] Cf. Waldman/Yammarino (1999), p. 269; Klein/House (1998), pp. 45f.; Bass et al. (1987), pp. 74f. One reason for this assumption is the finding that supervisors are reported to frequently hire subordinates, who are similar to themselves in their leadership behavior.

[686] Waldman/Yammarino (1999), p. 274.

[687] This statement is translated from the original German answer: "Unser CEO hat in dieser Tochtergesellschaft ein System aufgebaut, das eine überdurchschnittliche Vertrauensbasis hat. […] Im Prinzip sind hier die persönliche Sicherheit und die persönliche Kultur überdurchschnittlich gut. Und das Vertrauen darauf, dass hier keiner so schnell seinen Job verliert, wenn er nur einmal etwas Falsches gesagt hat, hat Konsequenzen. Das merkt man."

[688] For example, cf. Jung/Sosik (2006), p. 20; Fiol/Harris/House (1999), p. 449; Rahim et al. (1999), p. 340; Munduate/Dorado (1998), pp. 171f.; Rahim/Psenicka (1996), p. 42; Yukl/Kim/Falbe (1996), p. 309.

[689] Jung/Sosik (2006), p. 13.

"However, the findings of prior research cannot be generalized readily to the performance of high-level executives […]. With few exceptions, the subjects of most prior studies have been college students, low-level supervisors, or middle managers."[690] Accordingly, the present research's results provide evidence for the 'neglected' group of top-level managers and further highlight the importance of personal power bases in organizational hierarchies.

2.2.3 Effects of Subordinates' Characteristics

Effects on the Relationships Between Using Management Accounting Information for Influencing and Subordinates' Commitment

For subordinates' characteristics, only one moderating effect is confirmed. The statistical analysis suggests that the more external the work locus of control, the more negative is the relationship between UEP and subordinates' commitment. Put differently, the negative effect of UEP on subordinates' commitment is intensified when UEP is employed for subordinates with an external work locus of control.

This finding contradicts prior research, which argues that externals "[…] prefer a more directed leadership since participation may appear insufficiently structured and frustrating."[691] Similar to this argumentation, this research proposed that subordinates with an external locus of control would be more receptive to UEP as the source of control is the respective supervisor, which corresponds with externals' view that others control tasks in their jobs.[692] Furthermore, externals are reported to be more contented to rely on external sources for information.[693]

The findings of this research may be attributed to the fact that subordinates with a tendency towards an external work locus of control are also less able to cope with external pressure in a problem-solving manner than internals.[694] MAI was earlier said to provide supervisors with the power to assert decisions and characterized as rational

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[690] Waldman/Yammarino (1999), p. 269.
[691] Kren (1992), p. 995; further cf. Murray (1990), pp. 114f.; Brownell (1981), pp. 846f.
[692] Cf. Mitchell/Smyser/Weed (1975), pp. 623-625.
[693] Cf. Fisher (1996), p. 366.
[694] Cf. Klimecki/Gmür (2005), p. 234.

and accurate information that may put additional pressure on subordinates.[695] Accordingly, when being influenced by means of UEP, externals may feel an increased pressure, which ultimately lowers their commitment. Internals, on the other hand, feel they can influence events in their jobs and would interpret this as a challenge, resulting in higher commitment.

Effects on the Relationships Between Using Management Accounting Information for Influencing and Subordinates' Performance

Since the main model analysis in chapter E2.2.1 yielded no significant relationships between the two informational influence strategies and subordinates' performance, the non-significant moderating effects could be expected.

While this can again be attributed to a lack of statistical power because of the small sample size of the present research,[696] these results moreover challenge the ability of the chosen constructs in explaining variances in the outcomes of UEA and UEP. Work locus of control and work self-efficacy were chosen to explain why subordinates react differently to the influence strategies used by their supervisors as they represent stable personal characteristics and distinctive aspects of the subordinates' personalities. Furthermore, prior research indicates that these constructs are important in predicting influence outcomes.[697] However, since most of the proposed moderating effects are non-significant for the analyzed sample, the ability of work locus of control and work self-efficacy for predicting influence outcomes must be questioned. Future research should thus try to integrate other factors such as subordinates' motivation, which has also been proposed as a vital indicator of influence outcomes. The fundamental role of motivation in organizational behavior has been emphasized due to the direct impact of subordinates' motivation on productivity.[698] Motivation is considered the subordinates' stimulus for action and can, therefore, be described as their emotional basis being expressed in their goals or reasons for behavior.[699] As motivation can be assessed through typical behavior patterns such as reactions on specific stimuli or sanctions,

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[695] Cf. chapter B1.3.1; further cf. Atkinson/Kaplan/Young (2004), pp. 4-6.
[696] Cf. chapter F2.2.1.
[697] Cf. Walker (2001), p. 42; Elangovan/Xie (1999), p. 360.
[698] Cf. Minkler (2004), p. 877.
[699] Cf. Klimecki/Gmür (2005), p. 113.

future research should thus analyze how motivation moderates the proposed relationships between informational influence strategies and influence outcomes.

Direct Effects on Subordinates' Commitment and Subordinates' Performance

The present research sample is characterized by a high work self-efficacy, which is found to positively and directly affect subordinates' commitment. BANDURA (1984) contends that the outcomes people expect are largely determined by their perceptions and judgements of what they can achieve.[700] The findings of this research support this argument and imply for the context of ABC that independent of the informational influence strategies employed by their supervisors, highly self-efficacious subordinates believe in their capabilities and personal competences and will mobilize an incremental commitment required to execute their jobs successfully.[701] Supporting prior research findings in psychology, highly self-efficacious managers in the present sample develop success scenarios and are generally committed higher to the organization than low self-efficacious managers.[702]

2.2.4 Effects of Task Difficulty

Effects on the Relationships Between Using Management Accounting Information for Influencing and Influence Outcomes

The statistical analysis yields no significant moderating effect of task difficulty on the suggested relationships. This finding is unexpected and challenges prior management accounting research, which proposes that the difficulty of the task would be an important moderating variable in similar contexts.[703] This research similarly argued that an increase of task difficulty would foster supervisors' need to process additional MAI to subordinates, ideally in a participative way, in order to lower their perceived uncertainty and thereby increase their commitment.[704] Further, the participative use of MAI

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[700] Cf. Bandura (1984), p. 231; further cf. Krishnan/Netemeyer/Boles (2002), p. 287.
[701] Cf. Wang/Netemeyer (2002), p. 222.
[702] Cf. Krishnan/Netemeyer/Boles (2002), p. 290; Stajkovic/Luthans (1998), p. 246.
[703] Cf. chapter C3.3.
[704] Cf. Brownell/Dunk (1991), p. 702; Mia (1989), p. 354; Brownell/Hirst (1986), p. 242.

would provide "[…] the opportunity for managers to gain access to resources which can be used to buffer task performance."[705]

Besides the statistical issues discussed above, the fact that the difficulty of the task does not moderate the relationships may be explained by the research sample. Respondents reported a high average work self-efficacy. Independent of their supervisors' use of different informational influence strategies based on MAI, they believe in their ability to cope with ambiguous and challenging situations and/or tasks, to take specific actions, and to ultimately generate desired outcomes.[706] As they are accordingly not irritated by difficult tasks and trust in their own competences, task difficulty does not moderate the outcomes of UEA or UEP in this specific setting.

Direct Effects on Subordinates' Commitment and Subordinates' Performance

YUKL/KIM/CHAVEZ (1999) contend that next to the mode in which supervisors exercise influence, the difficulty of the tasks would determine influence outcomes.[707] In the present research context, this is only partially supported. Subordinates' commitment is not affected directly by the difficulty of the task, but only by the mode in which supervisors use MAI for influencing. In contrast, subordinates' performance is affected directly and negatively by task difficulty. This finding is consistent with prior research indicating that subordinates experience a higher degree of uncertainty about cause-effect-relationships in high task difficulty situations, which can be detrimental to their performance.[708] As tasks become more difficult, the knowledge and skills required for task accomplishment increase as well. While these findings may hence challenge respondents' ability to cope with difficult tasks, caution is needed to construe this as a lack of managerial abilities as this research did not explicitly account for subordinates' knowledge or skills. Furthermore, over 80 percent of the respondents indicated having a university's and/or a doctorate's degree,[709] which are shown to empirically correlate with competencies and knowledge.[710] Future research will need to examine these relationships in more detail.

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[705] Lau/Tan (1998), p. 166.
[706] Cf. chapter F2.2.3.
[707] Cf. Yukl/Kim/Chavez (1999), p. 137 and the literature cited there.
[708] Cf. Lau/Buckland (2000), p. 49.
[709] Cf. Table 22.
[710] Cf. Baruch/Bell/Gray (2005), p. 64; Baruch/Peiperl (2000), p. 69.

G Conclusion

1. Summary of the Results

The starting point for the present study was the claim that "[…] the principal purpose of accounting is to influence behavior, i.e. to provide the information and the motivation for certain actions."[711] By providing managers "[…] with power to achieve their own ends"[712], MAI is a particularly important resource for informational influence strategies.

While research in the field of social psychology stresses the importance of informational influence strategies,[713] it neither specifies the types of information that can be used for exercising influence in organizational settings, nor discusses different modes in which the agents can present that information to influence the targets. At this juncture, research on the use of information was employed to derive two strategies in which supervisors can use MAI to influence their subordinates, namely UEA and UEP. These influence strategies result in different outcomes, of which subordinates' organizational commitment and job performance are particularly important according to social psychology research. The outcomes of UEA and UEP vary in intensity depending on the supervisors' power bases and the associated control of critical resources that subordinates need in order to accomplish their tasks, as well as on subordinates' characteristics and task difficulty.[714]

Because the relationships between informational influence strategies based on MAI, influence outcomes, and the selected moderating variables are multifaceted and have not been well understood, the primary goal of the present research was to empirically analyze these relationships.[715]

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[711] Martin (1983), p. 4.
[712] Chenhall (2003), p. 129.
[713] For example, cf. Yukl/Kim/Chavez (1999), p. 141.
[714] Cf. Venkatesh/Kohli/Zaltman (1995), pp. 71f.; Hirst/Baxter (1993), p. 190; Palich/Hom (1992), p. 280.
[715] Cf. chapter B1.1.4; further cf. Yukl (2006), p. 169.

For analyzing and answering the research questions, this exploratory study sequentially collected quantitative and qualitative data from a large branch of a German utility provider, referred to as ABC. More specifically, document analyses and interviews with high-level managers and industry experts were conducted during phase one of the research, which allowed tailoring the questionnaire to the company under study. The questionnaire itself in phase two was distributed among 105 high-level managers on the first, second, and third hierarchy level of ABC, providing the quantitative data for the PLS analysis that was used to test the causal research questions. The final sample consisted of 51 respondents, equaling an effective response rate of 48.6 percent. Given the lack of prior empirical findings and the focus on one company in a single industry, interviews with high-level managers were conducted during phase three to substantiate questionnaire findings. The main results pertaining to each research questions are subsequently summarized.[716]

Research Question 1: How do supervisors' uses of MAI for influencing affect subordinates' organizational commitment and job performance?

Based on social psychology research on influence strategies and management accounting research on the use of information, the present study derived two informational influence strategies, namely UEA and UEP. Both are carried out with direct reference to concrete decisions, but vary in the degree to which subordinates participate in the decision-making process. UEA involves some part of subordinates' influence. The objective is to offer subordinates a course of action that will alter their perception of the desirability of the proposed request and will thus lead to an increase in their expected value of the outcomes. In contrast, UEP occurs when supervisors use MAI to substantiate an order or an instruction given to subordinates that are excluded from the decision-making process.

UEA and UEP were subsequently operationalized with multiple indicators based on a reflective measurement perspective. According to the measurement model assessment, UEA and UEP are distinct constructs that are both employed by supervisors for influencing subordinates at ABC. The descriptive statistics showed that supervisors across hierarchy levels one and two let subordinates participate significantly more in making

[716] For a detailed discussion of the findings, refer to chapter 0.

final decisions rather than merely assigning tasks. In other words, they employed UEA significantly more than UEP. While research on leadership commonly states that an increase in size and formality of the organization is accompanied by more centralized decisions,[717] the results of this study imply that budget-responsible, high-level managers need to be involved in decisions based on MAI because they possess more detailed knowledge about their operative businesses, which may further improve the quality of final decisions and lead to more realistic operational targets.

The structural model results revealed that supervisors should use MAI in a participative way (i.e., employ UEA) to enhance subordinates' commitment. Subordinates will then better identify with and internalize the decisions based on MAI. In contrast, UEP was found to affect this influence outcome negatively. For the use of MAI, these findings confirm the related stream of social psychology research, which posits a positive impact of rational and participative influence strategies and a negative effect of authoritative influence strategies on subordinates' commitment.

In contrast to this research's propositions, no direct performance effects were found for UEA and UEP. Rather, subordinates' commitment mediated the performance effects of both informational influence strategies. The non-significant direct relationships were interpreted in light of ABC's business environment, which oftentimes involves technical information that is not captured by the formal management accounting system. While interviews at ABC confirmed that MAI is vital in order to substantiate final decisions, in this research context, technical information play a more important role in determining job performance.

The mediating effect of subordinates' commitment suggests that the relationships between informational influence strategies based on MAI and subordinates' performance are more complex than proposed by many studies in social psychology research and research on the use of information, which posit direct associations between those constructs. As subordinates' performance is strongly determined by subordinates' commitment, these findings further emphasize the importance of gaining subordinates' commitment to manage team members effectively and efficiently.[718]

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[717] Cf. Connor (1992), pp. 226-228.
[718] Cf. Ahn/Dyckhoff (1997), pp. 2-6 for a discussion of the terms effectiveness and efficiency.

Research Question 2: How do supervisors' power bases moderate the suggested relationships between the uses of MAI for influencing and influence outcomes?

This study pioneered the analysis of possible moderating effects of supervisors' power bases on the relationships between informational influence strategies and influence outcomes. Specifically, it was argued that the outcomes of UEA and UEP would depend on the power bases of the supervisors. A review of power base classifications showed that the FRENCH JR./RAVEN (1959) framework including RAVEN's (1965) amendment is the most widely used classification and is moreover able to explain most of the power bases suggested in the literature until today.[719] As the final selection of power bases depends on the respective research context, three modifications were undertaken and six power bases were distinguished for analysis: legitimate, information, impersonal reward/coercion, personal reward/coercion, referent, and expert power bases. Due to the lack of theoretically well-established relationships between the variables under study, tentative propositions were advanced about how these power bases should moderate the relationships between UEA and UEP on the one hand, and subordinates' commitment and performance on the other hand.

The major, unanticipated result of the subsequent causal model analysis was that almost no power base construct moderated the relationships. While the small sample size of this research may have impeded the detection of significant moderating effects under the PLS product indicator approach, it was shown that the few detected moderating results within this small sample are robust and possess a relatively high accuracy in the estimation of 'true' parameter estimates.[720]

Concerning subordinates' commitment as outcome variable, the expert power base was found to negatively and significantly moderate the path from UEA. This counterintuitive finding contradicts the proposed positive moderating effect and implies that subordinates develop a lower organizational commitment, albeit still positive, when supervisors, who they perceive as experts in their jobs, use UEA to influence them. This was attributed to the fact that expert power can have a detrimental effect when the source of influence (i.e., the respective supervisor) only relies on MAI in influence

[719] Cf. Raven (1965); French Jr./Raven (1959).
[720] Cf. chapter F2.2.1.

processes, but is not specifically perceived to be an expert in management accounting. Furthermore, subordinates at ABC would generally expect an argumentation based on technical information, as most final decisions involve a technical component. Thus, when supervisors only use MAI in influence processes, they are perceived to omit part of the required information, which leads to mistrust and a resultantly lower commitment among subordinates.

With regard to subordinates' performance, only the expert power base was found to negatively and significantly moderate the path from UEP. However, the moderation itself had no meaningful impact, as the path coefficient from UEP to subordinates' performance in this moderating model remained non-significant.

Although not hypothesized, personal reward/coercive power and referent power had a strong positive and direct effect on subordinates' commitment and, in the case of referent power, also on subordinates' performance. In contrast, the impersonal power bases including legitimate, impersonal reward/coercive, and information power did not directly influence subordinates' commitment or performance. These findings confirm social psychology research positing that formal power bases have only little effect on subordinates' commitment. Furthermore, they emphasize "[…] the key role performed by personal power bases in inducing the desired outcomes of members in organizations involved in processes of change."[721]

Research Question 3: How do subordinates' work locus of control and work self-efficacy moderate the suggested relationships between the uses of MAI for influencing and influence outcomes?

Next to the supervisors' power bases, the outcomes of UEA and UEP were argued to be dependent on subordinates' work locus of control and work self-efficacy, both of which represent enduring personal characteristics and distinct facets of subordinates' personalities.

With regard to subordinates' work locus of control, this research proposed that subordinates with an internal locus of control would be more receptive to UEA and less receptive to UEP than subordinates with an external work locus of control. It was spe-

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[721] Munduate/Dorado (1998), p. 173.

cifically argued that they have a propensity to obtain and exert personal control and perform higher in participatory situations. In contrast, subordinates with an external locus of control were proposed to be more receptive to UEP, as they "[…] are happier to rely on outside sources for information […]."[722] Most of the proposed moderating effects of work locus of control were non-significant. Only the relationship between UEP and subordinates' commitment was negatively and significantly moderated by subordinates' work locus of control, i.e., the more external the work locus of control, the more negative was the relationship between UEP and subordinates' commitment. This finding opposed the proposition that managers with an external locus of control would be more receptive to UEP.[723] It was argued that externals feel a greater pressure by their supervisors' use of UEP that ultimately lowers their commitment.

Concerning subordinates' work self-efficacy, it was argued that a high self-efficacy would positively moderate the relationships between UEA and UEP on the one hand, and subordinates' commitment and performance on the other hand, because highly self-efficacious managers can be expected to believe in their ability to cope with challenging situations when being supplied with the necessary MAI to complete a task. Conversely, low self-efficacious managers would not believe in their capabilities to exercise control over challenging demands. They would consider the tasks assigned by their supervisors to be more difficult than they really are, which is why they were proposed to react even more negatively to UEP. While work self-efficacy did not moderate the suggested relationships, the construct directly and positively affected subordinates' commitment. This implies for the context of ABC that independent of the informational influence strategies employed by their supervisors, highly self-efficacious managers develop success scenarios and are generally more committed to the organization than low self-efficacious managers.[724] They believe in their capabilities and personal competence and will mobilize an incremental commitment required to execute their jobs successfully. This finding confirms prior psychology research arguing that the outcomes people expect are largely determined by their perceptions and judgements of what they can achieve.[725]

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[722] Fisher (1996), p. 366.
[723] Cf. Mitchell/Smyser/Weed (1975), pp. 623-625.
[724] Cf. Krishnan/Netemeyer/Boles (2002), p. 290; Wang/Netemeyer (2002), p. 222.
[725] Cf. Schäffer (2001), pp. 115f.

Research Question 4: How does task difficulty moderate the proposed relationships between the uses of MAI for influencing and influence outcomes?

Lastly, the outcomes of UEA and UEP were proposed to depend on the difficulty of the tasks. Following previous social psychology and management accounting research, the present study specifically proposed that an increase in task difficulty would increase the overall job complexity and would be accompanied by a higher level of perceived uncertainty, ultimately resulting in a lower commitment of managers towards their organizations and jobs.[726] High task difficulty was thus proposed to increase the need for additional information and the propensity for communication so that it should positively moderate the relationships between UEA and negatively moderate the relationships between UEP and subordinates' commitment.

However, in this research context, task difficulty did not significantly moderate the main model relationships. Rather, although not hypothesized, an increase in task difficulty was found to influence subordinates' performance negatively and directly, which was an intuitively reasonable result that confirmed prior research in management accounting.

2. Limitations and Future Research Directions

The findings and implications of this research must be considered in light of its limitations. First, methodological concerns may be raised:

- The data were collected from only one company and the results are confined to the utility sector in Germany. While the analysis of pilot studies in one company is recommended to provide insights into the variables of interest and the relationships under study,[727] it does not allow generalizing the findings to other industries and countries.
- The small sample size that resulted from the focus on one company constrains the study in making broad generalizations. However, 51 responses assured a high

[726] Cf. Mia (1987), p. 558.
[727] Cf. Galtung (1969).

enough sample size for PLS calculations.[728] Nevertheless, diversifying the sample with regard to industry and/or location in subsequent studies would increase the variability of answers and representativeness of results.[729]

- Another methodological concern is associated with the purposive non-probability sample at ABC from which the data were collected. This approach was advantageous as it allowed purposefully selecting respondents who were able to answer the questionnaire and to eliminate other possible contingency factors such as differences in the culture among firms or the differences in the market environment. Further, it helped to overcome the limitation of prior studies on the use of information, which assumed that differences in the types of formal MAI provided to managers would not affect the outcomes of information use. On the downside, there was "[…] no way of estimating the probability that any population element will be included in the sample […]"[730] and the homogenous sample did not allow to analyze differences in the use of UEA and UEP due to demographic factors such as gender, age, nationality, or education. It is moreover conceivable that the type of job and the company culture at ABC affected the linkages researched in this study. Specifically, the high-level managers of ABC might have reported greater levels of participation (i.e., a more frequent use of UEA by their supervisors) as they are budget-responsible themselves and oftentimes need to be involved in operative and strategic decisions that affect their profit centers. Further, high-level managers' performance may more strongly depend on their commitment than for low-level managers, whose performance may more strongly be dependent on extra effort.[731] Future studies should thus try to analyze actor- and context-specific differences in the use of MAI for influencing and include factors related to ethnicity, age, gender, and education. Analyzing these factors in a broader sample would further increase the representativeness of the results.
- A mail questionnaire can be challenged as a data collection method as it does not allow explaining the questions to respondents. Further, the researcher cannot decode differences in the respondents' interpretation of the questions. However, a

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[728] Cf. chapter D4.2.3.
[729] Cf. Galtung (1969), pp. 51f.
[730] Churchill Jr./Iacobucci (2005), p. 324.
[731] Cf. Ferris (1981), p. 324.

mail questionnaire is advantageous as it allows controlling for the bias related to respondents' perception of the interviewer. Further, respondents can work at their own pace and tend to "[…] be more frank on sensitive issues […]"[732] due to the anonymity of a survey. Moreover, as shown in chapter D3, the questionnaire was thoroughly pretested with a sample of 30 respondents from academia and practice, which minimized potential ambiguousness in the wording of the questions and ensured that respondents would have all necessary information to answer the questions.

- A questionnaire is not free of respondents' subjectivity. Common method variance and social desirability might thus inflate the strengths of the relationships.[733] However, the present approach to ask subordinates to evaluate their supervisors reduces the social desirability problem of supervisors in self-assessing their influence strategies and power bases. Future research on this topic should, nonetheless, try to apply a dyadic research design. In particular, interesting insights could be gained by pairwise comparisons of supervisors' self-assessed power bases and influence strategies and subordinates' upward assessments. Given that upward assessments especially among high-level managers in hierarchical organizations are politically difficult to enforce, which was demonstrated by the interference of the Senior Staff Council at ABC, broadening the sample and then collecting one dyad per firm would likely increase the feasibility of such a study. However, it would then be necessary to assume that the MAI provided to managers across organizations is identical. This could be solved by defining certain, predetermined influence situations in the questionnaire or by conducting experimental research.
- In contrast to supervisors' influence strategies and power bases, this study relied on a variety of self-rated measures such as subordinates' commitment or subordinates' performance. Some authors challenge the use of self-rated measures for variables such as performance or commitment, as they tend to have a higher leniency error (i.e., a higher mean value) and a lower variability error (i.e., a more restrictive range) than supervisors' ratings of the same managers. However, evidence suggests that subordinates' self-assessments significantly correlate with both ob-

[732] Churchill Jr./Iacobucci (2005), p. 223.
[733] Cf. Podsakoff et al. (2003), pp. 879f.

jective and supervisors' subjective assessments.[734] Applying a dyadic research design in future studies would allow comparing supervisors' with subordinates' assessments, which would increase the validity of the measures.

- This research proposed and analyzed causal relationships between latent constructs. Although PLS strongly supports the interpretation of causal relations as it simultaneously predicts all suggested relationships, definite conclusions about causality cannot be made. The assumption made that the exogenous or independent LVs precede the endogenous or dependent LVs is completely theory-driven and cannot be attributed to the research method. For that reason, the possibility of reverse causality cannot be ruled out. Future research should, therefore, use different research methods to examine more systematically the causal relationships implicit in the present research, for example, by conducting experimental research.
- As the data were collected at a single point in time, longitudinal assessments could not be made. Longitudinal assessments of the variables under study would help to deepen the understanding of these relationships.[735] Specifically, they would allow investigating the frequency with which managers use UEA or UEP as well as possible combinations of the two. For instance, longitudinal studies would allow answering the following questions: What happens when an influence strategy such as UEA does not lead to the desired outcome? Would supervisors turn to a more authoritative influence strategy such as UEP?

Second, next to the methodological limitations, concerns regarding the theoretical assumptions of this study may be raised:

- The information power base was redefined as supervisors' control over and access to formal management accounting systems. It is acknowledged that there are other formal information systems besides management accounting systems that would also constitute a so-defined information power base. However, in this research's definition, which was provided to all study participants on the front page of the questionnaire, management accounting systems provide future-oriented, financial and non-financial information, as well as company-external information about markets, customers, and/or competitors. They thus encompass other formal infor-

[734] Cf. Chenhall (2003), p. 134.
[735] For different types of longitudinal analyses cf. Churchill Jr./Iacobucci (2005), pp. 108f.

mation sources. Future studies should, nevertheless, try to replicate these findings for other formal information systems and further attempt to integrate informal information.

- The present research focused on the deduction and analysis of informational influence strategies based on MAI, combining social psychology and management accounting research. Evidently, managers will not always rely on MAI to influence their subordinates. Future studies should try to integrate the findings of this study with prior research on influence strategies and try to analyze possible combinations of different influence strategies.
- Finally, the present study assumed strong hierarchical relationships and only analyzed downward influence because in a formal organization such as ABC, work objectives and standards are determined by a top-down process. Oftentimes, however, decisions are reached and communicated in group-meetings, which were not analyzed within the scope of this research. In order to deepen the understanding of how MAI is used in practice, future researchers should thus try to integrate lateral and/or upward influence attempts and should further try to accompany respective group meetings in organizations to observe how managers use MAI for influencing.

In spite of the statistical and theoretical limitations, the findings of this study have important implications for managers that are addressed below.

3. Practical Implications

Understanding the ways in which MAI can be used for influencing and the related power relationships in organizations is important for managers to influence subordinates successfully. Nevertheless, caution is needed in offering normative managerial guidelines until future research can confirm these results for different companies, industries, and cultures.

Since the statistical analysis revealed that UEA enhanced and UEP decreased subordinates' organizational commitment, which in turn mediated their job performance, a wider adoption of a participative use of MAI by means of UEA should be encouraged among supervisors at ABC. This especially holds true as the German utility sector faces an increasingly intense market competition, which emphasizes the necessity to effectively and efficiently employ MAI in influence processes. When supervisors in-

fluence subordinates by means of UEA, they further provide them with the opportunity to clarify the path-goal requirements of particular tasks. This will not only help subordinates to internalize the decisions, but will directly increase their commitment and, indirectly, their performance. The claim for a wider adoption of a participative use of MAI in downward informational influence is accentuated by the strong and mainly consistent outcomes of UEA for differing degrees of supervisors' power bases, subordinates' characteristics, and task difficulty. For the present research context, the resulting robustness of the research model highlights that UEA is the more effective influence strategy when compared to UEP.

Next to the consequences of using UEA and UEP, supervisors need to be aware of the social power relationships present in the organization, as their attributed power bases can directly affect subordinates' attitudes and behaviors, independent of the influence strategies they employ.[736] "A demand is only politically feasible if sufficient power can be mobilized and committed to it. This involves not only the possession and control of system relevant resources but also their skillful use."[737] However, while supervisors' personal power bases directly and positively affect influence outcomes, their impersonal or formal power bases do not exert a significant direct impact. These findings imply for the present research context that managers should extend their power bases from formal (i.e., impersonal) to informal (i.e., personal) ones. In other words, formal power bases should be de-emphasized, as they do not allow for the successful shaping of subordinates' commitment and performance. Supervisors should rather make an effort to enhance their personal power bases with subordinates who they need to influence, as they facilitate gaining cooperation even for difficult tasks. This can be achieved, for example, by actively trying to invoke feelings of trust and identification among subordinates.

The results further suggest that supervisors, who are respected and valued by their subordinates and are further recognized to possess a high personal power bases, can be more authoritative in their leadership style and influence behavior than non-respected or disliked supervisors. While the combined effect of using UEA and emphasizing personal power bases can be regarded as most advantageous for inducing subordi-

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[736] Cf. Rahim et al. (1999), p. 340; Rahim/Psenicka (1996), p. 42.
[737] Pettigrew (1972), p. 202.

nates' commitment and performance, supervisors can partially offset the negative commitment impact of UEP by enhancing their personal power bases. In the present research context, managerial decisions are then more effectively and efficiently asserted. From the company's point of view, the provision of formal human relations training should help supervisors in diagnosing and managing power relationships as well as using MAI for influencing subordinates successfully.

Finally, highly self-efficacious managers in the context of ABC are found to be more committed to the organization than low self-efficacious managers. They believe in their capabilities and personal competence and will mobilize an incremental commitment required to execute their jobs successfully. While these managers may also overestimate their own abilities, the results point to the conclusion that selection and placement of highly self-efficacious managers in the job positions under study will benefit the organization.

This research combined and extended social psychology research on power and influence strategies with insights from research on the use of information. Despite the limitations, the results help to gain a deeper understanding of how high-level managers can use MAI in practice for influencing subordinates successfully.

Appendix

1. Sample Statistics of the Respondents

Variable	Hierarchy Level	N	Mean Rank	Chi-Square	df	Sign.*
Subordinates' Commitment (SCOM)						
SCOM1	1	11	25.64	6.28	2	0.04
	2	18	32.25			
	3	22	21.07			
SCOM2	1	11	23.95	0.48	2	0.79
	2	18	27.67			
	3	22	25.66			
SCOM3	1	11	24.82	15.09	2	0.00
	2	18	36.00			
	3	22	18.41			
SCOM4	1	11	25.41	7.75	2	0.02
	2	18	33.17			
	3	22	20.43			
SCOM5	1	11	28.73	11.50	2	0.00
	2	18	33.56			
	3	22	18.45			
SCOM6	1	11	26.18	6.65	2	0.04
	2	18	32.36			
	3	22	20.70			
SCOM7	1	11	26.68	3.09	2	0.21
	2	18	30.17			
	3	22	22.25			
SCOM8	1	11	30.41	1.84	2	0.40
	2	18	26.64			
	3	22	23.27			
Subordinates' Performance (SPER)						
SPER1	1	11	20.05	2.58	2	0.28
	2	18	28.53			
	3	22	26.91			
SPER2	1	11	28.86	3.55	2	0.17
	2	18	29.08			
	3	22	22.05			
Work Self-Efficacy (WSEF)						
WSEF1	1	11	31.27	7.86	2	0.02
	2	18	30.22			
	3	22	19.91			
WSEF2	1	11	25.41	3.97	2	0.14
	2	18	30.67			
	3	22	22.48			
WSEF3	1	11	29.36	10.56	2	0.01
	2	18	32.58			
	3	22	18.93			

1. (cont.)

Variable	Hierarchy Level	N	Mean Rank	Chi-Square	df	Sign.*
WSEF4	1	11	36.50	13.56	2	0.00
	2	18	29.11			
	3	22	18.20			
WSEF5	1	11	30.82	7.27	2	0.03
	2	18	30.19			
	3	22	20.16			
WSEF6	1	11	26.00	1.46	2	0.48
	2	18	28.89			
	3	22	23.64			
WSEF7	1	11	31.27	2.68	2	0.26
	2	18	26.42			
	3	22	23.02			
WSEF8	1	11	31.59	3.03	2	0.22
	2	18	26.50			
	3	22	22.80			
WSEF9	1	11	28.77	4.57	2	0.10
	2	18	29.89			
	3	22	21.43			
WSEF10	1	11	33.41	8.75	2	0.01
	2	18	29.28			
	3	22	19.61			
Work Locus of Control (WLOC)						
WLOC1	1	11	28.68	0.54	2	0.76
	2	18	24.67			
	3	22	25.82			
WLOC2	1	11	21.27	2.92	2	0.23
	2	18	30.14			
	3	22	24.98			
WLOC3	1	11	21.41	1.43	2	0.49
	2	18	27.31			
	3	22	27.23			
WLOC4	1	11	25.23	0.68	2	0.71
	2	18	24.19			
	3	22	27.86			
WLOC5	1	11	21.95	1.61	2	0.45
	2	18	25.31			
	3	22	28.59			
WLOC6	1	11	27.32	0.12	2	0.94
	2	18	25.42			
	3	22	25.82			
WLOC7	1	11	28.36	2.24	2	0.33
	2	18	28.75			
	3	22	22.57			
WLOC8	1	11	26.41	1.08	2	0.58
	2	18	28.44			
	3	22	23.80			

1. (cont.)

Variable	Hierarchy Level	N	Mean Rank	Chi-Square	df	Sign.*
Task Difficulty (TDIF)						
TDIF1	1	11	25.77	0.27	2	0.87
	2	18	24.75			
	3	22	27.14			
TDIF2	1	11	23.14	1.30	2	0.52
	2	18	24.69			
	3	22	28.50			
TDIF3	1	11	18.59	3.61	2	0.16
	2	18	27.86			
	3	22	28.18			
TDIF4	1	11	17.05	5.90	2	0.05
	2	18	27.53			
	3	22	29.23			
TDIF5	1	11	24.23	1.13	2	0.57
	2	18	24.22			
	3	22	28.34			
TDIF6	1	11	26.45	1.09	2	0.58
	2	18	23.25			
	3	22	28.02			
TDIF7	1	11	29.05	2.39	2	0.30
	2	18	21.92			
	3	22	27.82			
* Small significance values ($p \leq 0.5$) indicate that the two groups have different locations.						

Table 46: Summary Statistics of the Kruskal-Wallis Test

2. Sample Statistics of the Assessed Supervisors

Variable	Hierarchy Level	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Sign.*
Use of MAI for Influencing ex-ante (UEA)						
UEA1	1	32	26.52	848.50	287.50	0.74
	2	19	25.13	477.50		
UEA2	1	32	27.09	867.00	269.00	0.48
	2	19	24.16	459.00		
UEA3	1	32	27.58	882.50	253.50	0.31
	2	19	23.34	443.50		
UEA4	1	32	27.45	878.50	257.50	0.35
	2	19	23.55	447.50		

2. (cont.)

Variable	Hierarchy Level	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Sign.*
Use of MAI for Influencing ex-post (UEP)						
UEP1	1	32	25.64	820.50	292.50	0.82
	2	19	26.61	505.50		
UEP2	1	32	25.30	809.50	281.50	0.65
	2	19	27.18	516.50		
UEP3	1	32	25.36	811.50	283.50	0.68
	2	19	27.08	514.50		
UEP4	1	32	25.41	813.00	285.00	0.70
	2	19	27.00	513.00		
Legitimate Power Base (LEP)						
LEP1	1	32	26.94	862.00	274.00	0.54
	2	19	24.42	464.00		
LEP2	1	32	25.69	822.00	294.00	0.84
	2	19	26.53	504.00		
LEP3	1	32	24.56	786.00	258.00	0.35
	2	19	28.42	540.00		
Information Power Base (IFP)						
IFP1	1	32	25.88	828.00	300.00	0.94
	2	19	26.21	498.00		
IFP2	1	32	23.48	751.50	223.50	0.11
	2	19	30.24	574.50		
IFP3	1	32	26.41	845.00	291.00	0.79
	2	19	25.32	481.00		
IFP4	1	32	25.83	826.50	298.50	0.91
	2	19	26.29	499.50		
Impersonal Reward/Coercive Power Base (RCIP)						
RCIP1	1	32	25.59	819.00	291.00	0.80
	2	19	26.68	507.00		
RCIP2	1	32	25.95	830.50	302.50	0.98
	2	19	26.08	495.50		
RCIP3	1	32	25.42	813.50	285.50	0.71
	2	19	26.97	512.50		
RCIP4	1	32	25.63	820.00	292.00	0.81
	2	19	26.63	506.00		
RCIP5	1	32	27.98	895.50	240.50	0.20
	2	19	22.66	430.50		
RCIP6	1	32	25.58	818.50	290.50	0.78
	2	19	26.71	507.50		

2. (cont.)

Variable	Hierarchy Level	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Sign.*
Personal Reward/Coercive Power Base (RCIP)						
RCPP1	1	32	26.36	843.50	278.00	0.59
	2	19	25.39	482.50		
RCPP2	1	32	27.08	866.50	253.50	0.31
	2	19	24.18	459.50		
RCPP3	1	32	28.64	916.50	249.00	0.27
	2	19	21.55	409.50		
RCPP4	1	32	25.19	806.00	292.50	0.81
	2	19	27.37	520.00		
RCPP5	1	32	24.42	781.50	269.50	0.48
	2	19	28.66	544.50		
RCPP6	1	32	24.28	777.00	219.50	0.09
	2	19	28.89	549.00		
Referent Power Base (REP)						
REP1	1	32	26.78	857.00	279.00	0.57
	2	19	24.68	469.00		
REP2	1	32	25.23	807.50	279.50	0.60
	2	19	27.29	518.50		
REP3	1	32	26.16	837.00	299.00	0.92
	2	19	25.74	489.00		
REP4	1	32	26.67	853.50	282.50	0.65
	2	19	24.87	472.50		
Expert Power Base (EXP)						
EXP1	1	32	24.41	781.00	282.50	0.65
	2	19	28.68	545.00		
EXP2	1	32	26.19	838.00	298.00	0.90
	2	19	25.68	488.00		
EXP3	1	32	25.17	805.50	277.50	0.58
	2	19	27.39	520.50		
EXP4	1	32	21.92	701.50	173.50	0.01
	2	19	32.87	624.50		
* Small significance values ($p \leq 0.5$) indicate that the two groups have different locations.						

Table 47: Summary Statistics of the Mann-Whitney U-test

3. Detailed Results of the Moderating Model Analysis

Moderating Variable	LEP	IFP	RCIP	RCPP	REP	EXP	WLOC	WSEF	TDIF
Relationship Between the Interaction Term and Subordinates' Commitment[a]									
Path	0.20	0.12	0.19	-0.12	-0.08	-0.26	0.20	0.22	0.01
t-value	0.80	0.53	0.96	0.71	0.37	1.67	0.94	0.68	0.02
Sign.	ns	ns	ns	ns	ns	*	ns	ns	ns
$R^2_{incl.}$	0.29	0.27	0.26	0.39	0.34	0.34	0.30	0.38	0.26
$R^2_{excl.}$	0.25	0.26	0.24	0.38	0.33	0.30	0.26	0.34	0.27
f^2	0.05	0.02	0.04	0.02	0.01	0.07	0.05	0.06	-0.01
Relationships Between the Moderating LV and Subordinates' Commitment[b]									
Path	0.22	0.19	-0.03	0.37	0.35	0.13	-0.15	0.33	-0.22
t-value	1.37	1.20	0.17	3.00	2.33	1.02	0.86	2.82	1.32
Sign.	ns	ns	ns	**	**	ns	ns	**	ns
$R^2_{incl.}$	0.29	0.27	0.26	0.39	0.34	0.34	0.30	0.38	0.26
$R^2_{excl.}$	0.26	0.24	0.26	0.29	0.23	0.33	0.23	0.26	0.23
f^2	0.04	0.04	0.00	0.17	0.16	0.01	0.09	0.21	0.05
Relationships Between UEA and Subordinates' Commitment									
Path	0.63	0.72	0.60	0.68	0.81	0.70	0.59	0.49	0.69
t-value	3.30	3.55	3.40	4.88	4.88	4.97	3.34	2.34	3.62
Sign.	**	**	**	**	**	**	**	**	**
Information on the Complete Moderating Model									
$Q^2_{incl.}$	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
$Q^2_{excl.}$	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Q^2	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00

*$p \leq 0.05$; **$p \leq 0.01$; ns = non-significant

a: The moderator hypothesis is accepted when the path from the interaction term to the dependent LV is significant.

b: The moderating LV exerts a direct significant impact on the dependent LV, when the path from the interaction term to the dependent LV is non-significant, and the path from the moderating LV to the dependent LV is significant.

Table 48: Moderating Results for the Relationships Between UEA and Subordinates' Commitment

Moderating Variable	**LEP**	**IFP**	**RCIP**	**RCPP**	**REP**	**EXP**	**WLOC**	**WSEF**	**TDIF**
Relationships Between the Interaction Term and Subordinates' Commitment[a]									
Path	0.02	-0.28	0.05	-0.12	0.08	-0.19	-0.14	-0.25	0.22
t-value	0.07	1.32	0.25	0.56	0.55	0.67	1.69	1.53	0.84
Sign.	ns	ns	ns	ns	ns	ns	*	ns	ns
$R^2_{incl.}$	0.26	0.32	0.24	0.39	0.33	0.31	0.30	0.40	0.30
$R^2_{excl.}$	0.25	0.26	0.24	0.38	0.33	0.30	0.26	0.34	0.27
f^2	0.01	0.09	0.01	0.02	0.00	0.02	0.05	0.10	0.05
Relationships Between the Moderating LV and Subordinates' Commitment[b]									
Path	0.18	0.15	-0.06	0.39	0.34	0.17	0.21	0.38	-0.20
t-value	1.08	0.92	0.32	3.22	2.27	1.04	0.89	3.06	1.29
Sign.	ns	ns	ns	**	*	ns	ns	**	ns
$R^2_{incl.}$	0.26	0.32	0.24	0.39	0.33	0.31	0.30	0.40	0.30
$R^2_{excl.}$	0.24	0.24	0.24	0.27	0.23	0.30	0.28	0.28	0.27
f^2	0.02	0.11	0.00	0.21	0.16	0.02	0.02	0.21	0.05
Relationships Between UEP and Subordinates' Commitment									
Path	-0.37	-0.27	-0.37	-0.45	-0.41	-0.46	-0.22	-0.15	0.66
t-value	1.93	1.71	2.15	2.80	2.06	2.59	1.65	1.81	4.38
Sign.	*	*	*	**	*	**	*	*	**
Information on the Complete Moderating Model									
$Q^2_{incl.}$	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
$Q^2_{excl.}$	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Q^2	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00

**p ≤ 0.05; **p ≤ 0.01; ns = non-significant*

a: The moderator hypothesis is accepted when the path from the interaction term to the dependent LV is significant.

b: The moderating LV exerts a direct significant impact on the dependent LV, when the path from the interaction term to the dependent LV is non-significant, and the path from the moderating LV to the dependent LV is significant.

Table 49: Moderating Results for the Relationships Between UEP and Subordinates' Commitment

Moderating Variable	LEP	IFP	RCIP	RCPP	REP	EXP	WLOC	WSEF	TDIF
Relationships Between the Interaction Term and Subordinates' Performance[a]									
Path	0.22	-0.14	0.21	-0.27	0.35	-0.24	0.36	0.39	0.26
t-value	1.13	0.54	0.84	1.02	1.30	0.83	1.04	1.00	0.94
Sign.	ns	ns	ns	ns	ns	ns	ns	ns	ns
$R^2_{incl.}$	0.21	0.23	0.20	0.29	0.45	0.29	0.35	0.39	0.38
$R^2_{excl.}$	0.17	0.22	0.15	0.19	0.35	0.21	0.23	0.29	0.33
f^2	0.04	0.02	0.07	0.14	0.18	0.10	0.18	0.17	0.09
Relationships Between the Moderating LV and Subordinates' Performance[b]									
Path	0.22	0.07	0.17	0.09	0.38	0.14	-0.13	0.24	-0.31
t-value	1.46	0.39	0.82	0.59	2.62	0.84	0.63	1.14	1.78
Sign.	ns	ns	ns	ns	**	ns	ns	ns	*
$R^2_{incl.}$	0.21	0.23	0.20	0.29	0.45	0.29	0.35	0.39	0.38
$R^2_{excl.}$	0.16	0.23	0.23	0.29	0.34	0.31	0.35	0.30	0.23
f^2	0.06	0.01	-0.03	0.00	0.20	-0.03	0.00	0.14	0.24
Relationships Between UEA and Subordinates' Performance									
Path	-0.12	0.11	-0.17	0.05	-0.09	0.10	-0.01	0.15	0.03
t-value	0.51	0.43	0.68	0.25	0.44	0.40	0.03	0.68	0.14
Sign.	ns	ns	ns	ns	ns	ns	ns	ns	ns
Information on the Complete Moderating Model									
$Q^2_{incl.}$	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
$Q^2_{excl.}$	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Q^2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**p ≤ 0.05; **p ≤ 0.01; ns = non-significant*

a: The moderator hypothesis is accepted when the path from the interaction term to the dependent LV is significant.

b: The moderating LV exerts a direct significant impact on the dependent LV, when the path from the interaction term to the dependent LV is non-significant, and the path from the moderating LV to the dependent LV is significant.

Table 50: Moderating Results for the Relationships Between UEA and Subordinates' Performance

Moderating Variable	**LEP**	**IFP**	**RCIP**	**RCPP**	**REP**	**EXP**	**WLOC**	**WSEF**	**TDIF**
Relationships Between the Interaction Term and Subordinates' Performance[a]									
Path	-0.13	0.27	-0.31	-0.25	-0.15	-0.38	0.47	0.32	0.24
t-value	0.44	1.18	1.00	0.74	0.44	1.71	0.95	0.86	0.73
Sign.	ns	ns	ns	ns	ns	*	ns	ns	ns
$R^2_{incl.}$	0.21	0.23	0.18	0.28	0.33	0.29	0.42	0.36	0.38
$R^2_{excl.}$	0.17	0.22	0.15	0.19	0.35	0.21	0.23	0.29	0.33
f^2	0.04	0.01	0.04	0.14	-0.03	0.11	0.33	0.11	0.08
Relationships Between the Moderating LV and Subordinates' Performance[b]									
Path	0.12	0.04	0.07	0.12	0.44	0.05	-0.09	0.19	-0.32
t-value	0.72	0.22	0.38	0.71	2.10	0.27	0.53	0.90	1.69
Sign.	ns	ns	ns	ns	*	ns	ns	ns	*
$R^2_{incl.}$	0.21	0.23	0.18	0.28	0.33	0.29	0.42	0.36	0.38
$R^2_{excl.}$	0.16	0.21	0.18	0.28	0.13	0.29	0.44	0.22	0.24
f^2	0.06	0.02	0.00	0.01	0.30	0.00	-0.04	0.21	0.22
Relationships Between UEP and Subordinates' Performance									
Path	-0.15	-0.10	-0.11	-0.17	-0.30	-0.22	-0.02	-0.07	-0.09
t-value	0.65	0.44	0.49	0.75	1.25	1.21	0.10	0.32	0.42
Sign.	ns	ns	ns	ns	ns	ns	ns	ns	ns
Information on the Complete Moderating Model									
$Q^2_{incl.}$	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
$Q^2_{excl.}$	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Q^2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**p ≤ 0.05; **p ≤ 0.01; ns = non-significant*

a: The moderator hypothesis is accepted when the path from the interaction term to the dependent LV is significant.

b: The moderating LV exerts a direct significant impact on the dependent LV, when the path from the interaction term to the dependent LV is non-significant, and the path from the moderating LV to the dependent LV is significant.

Table 51: Moderating Results for the Relationships Between UEP and Subordinates' Performance

4. Questionnaire

„Entscheidungen erfolgreich durchsetzen“

– Eine empirische Studie zur effektiven Nutzung von Controllinginformationen zur Durchsetzung von Entscheidungen –

European Business School

Lehrstuhl für Controlling
Univ.-Prof. Dr. Utz Schäffer
Schloß Reichartshausen

65375 Oestrich-Winkel

http://www.ebs.de/controlling

Rückfragen beantwortet Ihnen gerne:
Dipl.-Kfm. Patrick Heinemann, MBA
Telefon: [redacted], Fax: [redacted]
patrick.heinemann@[redacted]

Wir bitten um 20 Minuten Ihrer Zeit. Dafür bieten wir Ihnen:

- Eine **individuelle Auswertung der Projektergebnisse** für Ihr Unternehmen.
- Die **kostenlose Teilnahme an einem Workshop**, in dem die Umfrageergebnisse unternehmensintern vorgestellt werden, mit Vorträgen von Prof. Dr. Utz Schäffer und Vertretern aus der Unternehmenspraxis.

Bitte beachten Sie bei der Beantwortung der Fragen folgende Hinweise:

- Unter **Controllinginformationen** werden alle Informationen verstanden, die **durch das Controllingsystem für die Führung des Unternehmens/der Unternehmenseinheit** zur Verfügung gestellt werden. Die Informationen können dabei z.B. aus dem Rechnungswesen (Kostenrechnung, etc.) stammen, aber auch aus der Produktion (Auslastungsquoten, etc.) oder aus dem Vertrieb.
- Dieser Fragebogen dient rein wissenschaftlichen Zwecken. Wir sichern Ihnen ausdrücklich zu, dass alle Angaben **streng vertraulich** und **in die Auswertung der Daten nur anonymisiert aufgenommen** werden.
- Im Verlauf des Fragebogens werden verschiedene Sachverhalte durch **ähnliche Fragestellungen** erfasst. Wir bitten Sie hierfür um Verständnis, da dies aus statistischen Gründen erforderlich ist.
- Die **Vollständigkeit Ihrer Antworten** ist für uns von **großer Bedeutung**. Bitte beantworten Sie alle Fragen, auch wenn Sie bei einigen Fragen nur annähernd eine Antwort geben können.
- Bitte füllen Sie den Fragebogen bis zum **08.08.2005** aus, und senden Sie ihn im beiliegenden Umschlag an die o.g. Adresse zurück. Das Adressfeld passt genau in das Fenster des beigefügten, frankierten DIN A4-Umschlages. Alternativ können Sie ihn auch gerne an die o.g. Faxnummer senden.

Vielen Dank für Ihre Zeit und Mitarbeit!

Angaben zu Ihrem Controllingsystem

Wie intensiv nutzen Sie persönlich die folgenden Controllinginformationen für Ihre derzeitige Tätigkeit?	gar nicht 1	2	3	4	5	6	sehr intensiv 7
1. Finanzinformationen (z.B. Umsatz, Kosten, EBIT(DA), Wertbeitrag, etc.)	☐	☐	☐	☐	☐	☐	☐
2. Informationen über Kunden, Märkte und Wettbewerber (z.B. Absatz pro Kunde, Kundenzufriedenheit, Marktanteile und -wachstum, Wettbewerberverhalten, etc.)	☐	☐	☐	☐	☐	☐	☐
3. Informationen über Produkte (z.B. Umsatzanteil einzelner Produkte, etc.)	☐	☐	☐	☐	☐	☐	☐
4. Informationen über Fertigung/Prozesse (z.B. Auslastungsquoten, Durchlaufzeiten, etc.)	☐	☐	☐	☐	☐	☐	☐
5. Informationen über Mitarbeiter (z.B. Mitarbeiterzufriedenheit, Fluktuation, Krankenstand, etc.)	☐	☐	☐	☐	☐	☐	☐
6. Informationen über Forschungs- und Entwicklungsaktivitäten/Innovationen (z.B. Anzahl Patentanmeldungen, Anzahl Verbesserungsvorschläge, etc.)	☐	☐	☐	☐	☐	☐	☐
7. Informationen über volkswirtschaftliche Rahmenbedingungen (z.B. Wirtschaftsdaten, etc.)	☐	☐	☐	☐	☐	☐	☐

Inwieweit trifft die folgende Aussage auf die von Ihrem Controllingsystem bereitgestellten Informationen zu? „Die folgenden Controllinginformationen stehen mir in ausreichendem Maß zur Verfügung ... "	trifft gar nicht zu 1	2	3	4	5	6	trifft voll zu 7
1. Finanzinformationen	☐	☐	☐	☐	☐	☐	☐
2. Informationen über Kunden, Märkte und Wettbewerber	☐	☐	☐	☐	☐	☐	☐
3. Informationen über Produkte	☐	☐	☐	☐	☐	☐	☐
4. Informationen über Fertigung/Prozesse	☐	☐	☐	☐	☐	☐	☐
5. Informationen über Mitarbeiter	☐	☐	☐	☐	☐	☐	☐
6. Informationen über Forschungs- und Entwicklungsaktivitäten/Innovationen	☐	☐	☐	☐	☐	☐	☐
7. Informationen über volkswirtschaftliche Rahmenbedingungen	☐	☐	☐	☐	☐	☐	☐

a) Werden die folgenden Instrumente in Ihrem Unternehmen eingesetzt? **b) Wenn ja, wie intensiv nutzt Ihr direkter Vorgesetzter diese Informationen für die Durchsetzung von Entscheidungen?**	**a) Nutzung im Unternehmen** Kein Einsatz	Fallweiser Einsatz	Laufender Einsatz	**b) Nutzung Ihres direkten Vorgesetzten zur Durchsetzung von Entscheidungen** gar nicht 1	2	3	4	5	6	sehr intensiv 7
1. Kostenrechnung										
1.1 Traditionelle Vollkostenrechnung	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
1.2 Deckungsbeitragsrechnung	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
1.3 Plankostenrechnung	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
1.4 Prozesskostenrechnung/Activity Based Costing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
1.5 Zielkostenrechnung/Target Costing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
1.6 Kundenlebenszyklusrechnung/Customer Life Cycle Costing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
1.7 Kundenerfolgs-/Kundensegment-/Absatzsegmentrechnung	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2. Externes Rechnungswesen										
2.1 Jahresabschluss (Bilanz, GuV, Anhang)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2.2 Kapitalflussrechnung	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2.3 Quartalsberichte	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3. Liquiditätsrechnungen	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4. Kennzahlen/Kennzahlensystem	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5. Investitionsrechnungen	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6. Budgetierung	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7. Monatliche Erfolgsrechnung	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8. Risikofrüherkennungssystem	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9. Vertriebsinformationssystem	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10. Produktionsplanungs- und -steuerungssystem	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
11. Umweltberichtssystem	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Inwieweit treffen die folgenden Aussagen auf die von Ihrem Controllingsystem bereitgestellten Informationen zu?	trifft gar nicht zu 1	2	3	4	5	6	trifft voll zu 7
1. Mein Vorgesetzter hat Zugang zu Controllinginformationen, die mir nicht zur Verfügung stehen.	☐	☐	☐	☐	☐	☐	☐
2. In unserem Unternehmen haben alle Zugang zu denselben Controllinginformationen.	☐	☐	☐	☐	☐	☐	☐
3. Die Zugangsberechtigungen zu unserem Controllingsystem sind so eingerichtet, dass ich nicht dieselben Controllinginformationen einsehen kann wie mein Vorgesetzter.	☐	☐	☐	☐	☐	☐	☐
4. Mir stehen dieselben Controllinginformationen wie meinem Vorgesetzten zur Verfügung.	☐	☐	☐	☐	☐	☐	☐

Welche Arten von Controllinginformationen fehlen Ihnen für Ihre tägliche Arbeit bzw. für welche Arten von Controllinginformationen wäre ein erweiterter Zugriff für Ihre tägliche Arbeit wünschenswert?

Führungsstil und Wahrnehmung Ihres direkten Vorgesetzten

Bitte markieren Sie im Folgenden den Punkt, der Ihre persönliche Wahrnehmung in Bezug auf Ihren direkten Vorgesetzten am ehesten widerspiegelt.	trifft gar nicht zu						trifft voll zu
	1	2	3	4	5	6	7
1. Mein Vorgesetzter ist ein Controllingexperte.	☐	☐	☐	☐	☐	☐	☐
2. Wenn ich die an mich gestellten Anforderungen erfülle, vermittelt mir mein Vorgesetzter das Gefühl, in seiner Wertschätzung zu steigen.	☐	☐	☐	☐	☐	☐	☐
3. Die Anerkennung meines Vorgesetzten ist wichtig für mich.	☐	☐	☐	☐	☐	☐	☐
4. Ich fühle mich persönlich akzeptiert, wenn ich handele, wie es mein Vorgesetzter verlangt.	☐	☐	☐	☐	☐	☐	☐
5. Mein Vorgesetzter hat das Recht, mich aufzufordern, meine Arbeit in einer bestimmten Art und Weise zu erledigen.	☐	☐	☐	☐	☐	☐	☐
6. Mein Vorgesetzter verfügt wahrscheinlich über höheres fachliches Wissen als ich.	☐	☐	☐	☐	☐	☐	☐
7. Eine gute Beurteilung durch meinen Vorgesetzten kann zu einer Erhöhung meines Gehalts führen.	☐	☐	☐	☐	☐	☐	☐
8. Es würde mich stören, wenn mich mein Vorgesetzter nicht akzeptiert.	☐	☐	☐	☐	☐	☐	☐
9. Wenn ich nicht das tue, was verlangt wird, kann mein Vorgesetzter kalt und abweisend sein.	☐	☐	☐	☐	☐	☐	☐
10. Zu wissen, dass ich in der Missgunst meines Vorgesetzten stehe, würde mich aufregen.	☐	☐	☐	☐	☐	☐	☐
11. Mein Vorgesetzter weiß wahrscheinlich am Besten, wie der Job zu machen ist.	☐	☐	☐	☐	☐	☐	☐
12. Mein Vorgesetzter weiß wahrscheinlich mehr über den Job als ich.	☐	☐	☐	☐	☐	☐	☐
13. Ich respektiere meinen Vorgesetzten und halte viel von ihm.	☐	☐	☐	☐	☐	☐	☐
14. Ich möchte nicht anderer Meinung als mein Vorgesetzter sein.	☐	☐	☐	☐	☐	☐	☐
15. Ich kann mich mit meinem Vorgesetzten identifizieren.	☐	☐	☐	☐	☐	☐	☐
16. Ich gestalte grundsätzlich meine Arbeit nach den Vorstellungen meines Vorgesetzten.	☐	☐	☐	☐	☐	☐	☐
17. Als Untergebener habe ich die Pflicht zu handeln, wie es mein Vorgesetzter verlangt.	☐	☐	☐	☐	☐	☐	☐
18. Mein Vorgesetzter kann mir							
a. ... helfen, geldwerte Vorteile zu erhalten.	☐	☐	☐	☐	☐	☐	☐
b. ... helfen, eine Beförderung zu bekommen.	☐	☐	☐	☐	☐	☐	☐
c. ... das Leben schwer machen.	☐	☐	☐	☐	☐	☐	☐
d. ... verlässliche berufliche Ratschläge geben.	☐	☐	☐	☐	☐	☐	☐
e. ... zu verstehen geben, dass ich Aufgaben zu erfüllen habe.	☐	☐	☐	☐	☐	☐	☐
f. ... erforderliches fachliches Wissen zur Verfügung stellen.	☐	☐	☐	☐	☐	☐	☐
g. ... gute fachliche Ratschläge geben.	☐	☐	☐	☐	☐	☐	☐
19. Mein Vorgesetzter kann mir das Gefühl vermitteln,							
a. ... geschätzt zu werden.	☐	☐	☐	☐	☐	☐	☐
b. ... wichtig zu sein.	☐	☐	☐	☐	☐	☐	☐
c. ... persönlich akzeptiert zu sein.	☐	☐	☐	☐	☐	☐	☐
d. ... dass er mich anerkennt.	☐	☐	☐	☐	☐	☐	☐
e. ... dass ich Verpflichtungen zu erfüllen habe.	☐	☐	☐	☐	☐	☐	☐
f. ... dass ich meine Job-Anforderungen erfüllen sollte.	☐	☐	☐	☐	☐	☐	☐
20. Mein Vorgesetzter kann							
a. ... eine mögliche Gehaltssteigerung für mich erschweren.	☐	☐	☐	☐	☐	☐	☐
b. ... meist gute Gründe anführen, warum ich den Job anders machen sollte.	☐	☐	☐	☐	☐	☐	☐
c. ... mich an seiner beträchtlichen Erfahrung und/oder Ausbildung teilhaben lassen.	☐	☐	☐	☐	☐	☐	☐
d. ... eine mögliche Beförderung für mich erschweren.	☐	☐	☐	☐	☐	☐	☐
e. ... meist gute Gründe anführen, damit ich die Notwendigkeit von Änderungen verstehe.	☐	☐	☐	☐	☐	☐	☐
f. ... meist gute Gründe anführen, damit ich verstehe, warum die empfohlenen Änderungen zu einer Verbesserung führen.	☐	☐	☐	☐	☐	☐	☐
Inwieweit stimmen Sie den folgenden Aussagen über Ihre Verbundenheit zu Ihrem Vorgesetzen zu?	stimme gar nicht zu						stimme voll zu
	1	2	3	4	5	6	7
1. Ich komme stets den Anweisungen meines Vorgesetzten nach.	☐	☐	☐	☐	☐	☐	☐
2. Ich folge immer den Vorschlägen meines Vorgesetzten.	☐	☐	☐	☐	☐	☐	☐

Inwieweit treffen die folgenden Aussagen auf das Verhalten Ihres direkten Vorgesetzten in verschiedenen Entscheidungssituationen zu?	trifft gar nicht zu					trifft voll zu
	1	2	3	4	5	6	7
1. Wenn mein Vorgesetzter für eine gemeinsame Entscheidung meine Zustimmung benötigt, nutzt er Controllinginformationen, um mich von seiner Meinung zu überzeugen.	☐	☐	☐	☐	☐	☐	☐
2. Bei gemeinsamen Entscheidungen führt mein Vorgesetzter regelmäßig Controllinginformationen an, die seine Meinung eindeutig unterstützen.	☐	☐	☐	☐	☐	☐	☐
3. Ich habe regelmäßig das Gefühl, dass mir mein Vorgesetzter bei gemeinsamen Entscheidungen nur solche Controllinginformationen präsentiert, die mich von seiner Meinung überzeugen sollen.	☐	☐	☐	☐	☐	☐	☐
4. In gemeinsamen Entscheidungsprozessen setzt mein Vorgesetzter nicht seine hierarchische Position, sondern Controllinginformationen ein, um mich von seiner Meinung zu überzeugen.	☐	☐	☐	☐	☐	☐	☐
5. Mein Vorgesetzter führt regelmäßig Controllinginformationen an, damit ich bereits getroffene Entscheidungen eher akzeptiere.	☐	☐	☐	☐	☐	☐	☐
6. Für die Begründung seiner bereits getroffenen Entscheidungen benutzt mein Vorgesetzter regelmäßig Controllinginformationen.	☐	☐	☐	☐	☐	☐	☐
7. Mein Vorgesetzter nutzt Controllinginformationen, um mir seine bereits getroffenen Entscheidungen zu kommunizieren und so mein Engagement zu erhöhen.	☐	☐	☐	☐	☐	☐	☐
8. Wenn mir mein Vorgesetzter Anweisungen erteilt, erläutert er mir diese mit Controllinginformationen.	☐	☐	☐	☐	☐	☐	☐
9. Für die meisten Entscheidungen involviert mich mein Vorgesetzter in den Entscheidungsprozess.	☐	☐	☐	☐	☐	☐	☐
10. Die meisten Entscheidungen werden hier nur durch die höheren Führungsetagen getroffen.	☐	☐	☐	☐	☐	☐	☐

Persönliche Angaben zu Ihrem direkten Vorgesetzten

Welches Geschlecht hat Ihr Vorgesetzter?

☐ Weiblich ☐ Männlich

Wie alt ist Ihr Vorgesetzter?

☐ Bis 25 Jahre ☐ 36-45 Jahre ☐ Über 55 Jahre
☐ 26-35 Jahre ☐ 46-55 Jahre ☐ Weiß ich nicht

Wie viele Jahre arbeitet Ihr Vorgesetzter für die [redacted]?

☐ Bis zu 1 Jahr ☐ Bis zu 5 Jahren ☐ Mehr als 5 Jahre

Welche Position bekleidet Ihr Vorgesetzter im Unternehmen?

bitte angeben:

Welchen höchsten Bildungsabschluss hat Ihr Vorgesetzter?

☐ Mittlere Reife
☐ Abitur
☐ Fachhochschulabschluss
☐ Universitätsabschluss
☐ Promotion
☐ Anderen Abschluss → Welchen? (bitte angeben):
☐ Weiß ich nicht

Ihre Arbeit

Inwieweit beschreiben folgende Aussagen Ihre beruflichen Aufgaben und Aktivitäten adäquat?	trifft gar nicht zu					trifft voll zu
	1	2	3	4	5	6	7
1. Meine Aufgaben im Unternehmen sind sehr repetitiv.	☐	☐	☐	☐	☐	☐	☐
2. Meine Arbeit im Unternehmen ist in hohem Umfang Routine.	☐	☐	☐	☐	☐	☐	☐
3. Es gibt eine klar definierte Wissensbasis, die als Grundlage für meine Arbeit im Unternehmen dient.	☐	☐	☐	☐	☐	☐	☐
4. Meine Aktivitäten im Unternehmen folgen größtenteils einer einfach verständlichen Abfolge.	☐	☐	☐	☐	☐	☐	☐
5. Die meisten meiner beruflichen Aktivitäten ähneln sich von einem Tag auf den anderen.	☐	☐	☐	☐	☐	☐	☐
6. Ich kann mich in einem hohen Maße auf eingespielte Verfahren und Methoden verlassen.	☐	☐	☐	☐	☐	☐	☐
7. Insgesamt ist die Situation innerhalb unseres Unternehmens durch häufige Veränderungen und eine hohe Komplexität geprägt.	☐	☐	☐	☐	☐	☐	☐
Bitte beurteilen Sie im Folgenden das Ausmaß Ihrer derzeitigen beruflichen Belastung.	trifft gar nicht zu					trifft voll zu
	1	2	3	4	5	6	7
1. Aufgrund des hohen Arbeitsaufkommens besteht häufig hoher Zeitdruck.	☐	☐	☐	☐	☐	☐	☐
2. Bei meiner Arbeit werde ich häufig unterbrochen und gestört.	☐	☐	☐	☐	☐	☐	☐
3. Bei meiner Arbeit habe ich hohe Verantwortung zu tragen.	☐	☐	☐	☐	☐	☐	☐
4. Ich bin häufig gezwungen, Überstunden zu machen.	☐	☐	☐	☐	☐	☐	☐
5. Im Laufe der letzten Jahre ist meine Arbeitsbelastung gestiegen.	☐	☐	☐	☐	☐	☐	☐
6. Im Vergleich zu anderen Personen meiner Hierarchieebene würde ich meine Chancen auf eine Beförderung als hoch einstufen.	☐	☐	☐	☐	☐	☐	☐
Bitte beurteilen Sie im Folgenden Ihre persönliche Performance sowie die Performance Ihres Unternehmens.	1	2	3	4	5	6	7
1. Bitte bewerten Sie Ihre (eigene) allgemeine Performance im Unternehmen. [sehr niedrig ... sehr hoch]	☐	☐	☐	☐	☐	☐	☐
2. Wie erfolgreich ist Ihrer Meinung nach Ihr Unternehmen? [nicht erfolgreich ... sehr erfolgreich]	☐	☐	☐	☐	☐	☐	☐
3. Bitte kreuzen Sie eine Antwort an. Meine derzeitigen Leistungsbeurteilungen liegen in den a) ☐ Top 5%, b) ☐ Top 10%, c) ☐ Top 25%, d) ☐ Top 50%, e) ☐ Unteren 50%.							

Inwieweit stimmen Sie den folgenden Aussagen über Ihre Verbundenheit zu Ihrer Organisation zu?	stimme gar nicht zu 1	2	3	4	5	6	stimme voll zu 7
1. Meinen Freunden gegenüber preise ich diese Organisation als sehr guten Arbeitgeber an.	☐	☐	☐	☐	☐	☐	☐
2. Ich wäre bereit, Abstriche in meinen bevorzugten Tätigkeiten zu akzeptieren, um weiter für diese Organisation arbeiten zu können.	☐	☐	☐	☐	☐	☐	☐
3. Ich finde, dass meine Werte den Werten dieser Organisation sehr ähnlich sind.	☐	☐	☐	☐	☐	☐	☐
4. Ich bin stolz darauf, anderen erzählen zu können, dass ich für diese Organisation arbeite.	☐	☐	☐	☐	☐	☐	☐
5. Diese Organisation begeistert mich und spornt mich zu einer höheren Arbeitsleistung an.	☐	☐	☐	☐	☐	☐	☐
6. Ich bin sehr froh, dass ich mich entschieden habe für diese und nicht für eine andere Organisation zu arbeiten.	☐	☐	☐	☐	☐	☐	☐
7. Ich bin dieser Organisation sehr verbunden.	☐	☐	☐	☐	☐	☐	☐
8. Für mich ist diese Organisation der bestmögliche Arbeitgeber.	☐	☐	☐	☐	☐	☐	☐

Beeinflussbarkeit und Verantwortung

Inwieweit stimmen Sie den folgenden Aussagen über Ihre Beeinflussbarkeit und Verantwortung im beruflichen Umfeld zu? Es gibt hierbei keine „richtigen" oder „falschen" Antworten. Ihre erste Reaktion ist wichtig.	stimme gar nicht zu 1	2	3	4	5	6	stimme voll zu 7
1. Wenn sich Widerstände auftun, finde ich Mittel und Wege, mich durchzusetzen.	☐	☐	☐	☐	☐	☐	☐
2. Die Lösung schwieriger Probleme gelingt mir immer, wenn ich mich darum bemühe.	☐	☐	☐	☐	☐	☐	☐
3. Es bereitet mir keine Schwierigkeiten, meine Absichten und Ziele zu verwirklichen.	☐	☐	☐	☐	☐	☐	☐
4. In unerwarteten Situationen weiß ich immer, wie ich mich verhalten soll.	☐	☐	☐	☐	☐	☐	☐
5. Auch bei überraschenden Ereignissen glaube ich, dass ich gut mit ihnen zurechtkommen kann.	☐	☐	☐	☐	☐	☐	☐
6. Schwierigkeiten sehe ich gelassen entgegen, weil ich meinen Fähigkeiten immer vertrauen kann.	☐	☐	☐	☐	☐	☐	☐
7. Was auch immer passiert, ich werde schon klarkommen.	☐	☐	☐	☐	☐	☐	☐
8. Für fast jedes Problem habe ich eine Lösung.	☐	☐	☐	☐	☐	☐	☐
9. Wenn eine neue Sache auf mich zukommt, weiß ich, wie ich damit umzugehen habe.	☐	☐	☐	☐	☐	☐	☐
10. Wenn ein Problem auf mich zukommt, habe ich meist mehrere Ideen, wie ich es lösen kann.	☐	☐	☐	☐	☐	☐	☐
11. Es ist größtenteils Glück, ob man den Job bekommt, den man haben möchte.	☐	☐	☐	☐	☐	☐	☐
12. Ob man viel Geld verdient, ist vor allem vom Schicksal abhängig.	☐	☐	☐	☐	☐	☐	☐
13. Um einen wirklich guten Job zu finden, benötigt man gute persönliche Kontakte.	☐	☐	☐	☐	☐	☐	☐
14. Beförderungen sind normalerweise Glückssache.	☐	☐	☐	☐	☐	☐	☐
15. Wenn man einen Job gefunden hat, sind persönliche Beziehungen wichtiger als Wissen.	☐	☐	☐	☐	☐	☐	☐
16. Um viel Geld zu verdienen, muss man die richtigen Leute kennen.	☐	☐	☐	☐	☐	☐	☐
17. Um in den meisten Jobs ein herausragender Mitarbeiter zu sein, erfordert es eine Menge Glück.	☐	☐	☐	☐	☐	☐	☐
18. Der Hauptunterschied zwischen denen, die viel, und denen, die wenig Geld verdienen, ist Glück.	☐	☐	☐	☐	☐	☐	☐

Angaben zu Ihrer Person

Abschließend möchten wir Sie bitten, uns für ein besseres wissenschaftliches Verständnis der Zusammenhänge einige Angaben zu Ihrer Person zu geben. Alle Angaben werden streng vertraulich behandelt!

Welches Geschlecht haben Sie?

☐ Weiblich ☐ Männlich

Wie alt sind Sie?

☐ Bis 25 Jahre ☐ 26-35 Jahre ☐ 36-45 Jahre ☐ 46-55 Jahre ☐ Über 55 Jahre

Wie viele Jahre arbeiten Sie bereits für die [redacted]?

☐ Bis zu 1 Jahr ☐ Bis zu 5 Jahren ☐ Mehr als 5 Jahre

Welche Position bekleiden Sie im Unternehmen?

bitte angeben:

Welchen höchsten Bildungsabschluss haben Sie?

☐ Mittlere Reife
☐ Abitur
☐ Fachhochschulabschluss
☐ Universitätsabschluss
☐ Promotion
☐ Anderen Abschluss → Welchen?
(bitte angeben):

Vielen Dank für Ihre Mitarbeit!

Bitte überprüfen Sie noch einmal, **ob alle Fragen vollständig ausgefüllt** sind. Dies ist für die wissenschaftliche Untersuchung von höchster Bedeutung. Bitte schicken Sie den ausgefüllten Fragebogen bis zum **08.08.2005** an die auf der Vorderseite angegebene Adresse. Das Adressfeld passt genau in das Fenster des beigefügten, frankierten DIN A4-Umschlages.

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