

# Meta-Synthesis of Qualitative Case Studies: An Approach to Theory Building

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## Abstract

The purpose of this article is to provide the research design of a meta-synthesis of qualitative case studies. The meta-synthesis aims at building theory out of primary qualitative case studies that have not been planned as part of a unified multisite effect. By drawing on an understanding of research synthesis as the interpretation of qualitative evidence from a postpositivistic perspective, this article proposes eight steps of synthesizing existing qualitative case study findings to build theory. An illustration of the application of this method in the field of dynamic capabilities is provided. After enumerating the options available to meta-synthesis researchers, the potential challenges as well as the prospects of this research design are discussed.

## Keywords

synthesis of knowledge, research synthesis, qualitative case study research, theory building

Case study research enables the study of contemporary organizational phenomena in a real-life setting with an in-depth, holistic study of few or single cases (e.g., Flyvbjerg, 2011; Hammersley & Gomm, 2002; Stake, 2005; Yin, 2009). Given the study's rich history and broad application, case study research has its strength in producing novel theoretical insight stemming from case-specific contextualized findings (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Hammersley & Gomm, 2002; Sigglekow, 2007). In organizational and management research, an increasing number of rich, qualitative case studies generate substantive contributions to a variety of different research areas, such as dynamic capabilities (Ridder, Hoon, & McCandless, 2009), strategy as practice (Jarzabkowski & Spee, 2009), or international business (Piekkari, Welch, & Paavilainen, 2009); yet little accumulation of the understanding gathered from these primary case studies has been gained.

This inattention may stem from the fact that most researchers design their studies to collect new primary data, thereby "overvaluing novelty to the detriment of accumulating convergent findings"

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(Rousseau, Manning, & Denyer, 2008, p. 476). Furthermore, procedures for the synthesis of qualitative studies are rare, with a few exceptions in the field of medical science or social policy that have benefited from an evidence-informed synthesis (e.g., Denyer & Tranfield, 2003; Noblit & Hare, 1988; Sandelowski & Barroso, 2007). Losing sight of a qualitative synthesis stands in sharp contrast to the increasing significance of the meta-analysis as the dominant approach to statistically aggregate quantitative evidence (Cooper, 2010; Glass, 1977; Hunter, Schmidt, & Jackson, 1982). Meta-analysis offers a set of valid methodological choices and procedures aiming to enhance the predictive potential and practical usefulness of organizational and management theory (e.g., Aytug, Rothstein, Zhou, & Kern, 2012; Carlson & Ji, 2011; Cortina, 2003; Kisamore & Brannick, 2008; Schmidt, 2008).

The lack of effort to “put together” empirical insight of primary case studies has important implications for knowledge development in management research. First, the case studies’ rich findings reach disparate conclusions about the same phenomenon with interpretations becoming difficult. By calling for further research, in many instances, new studies may produce equally disparate findings (Carlson & Ji, 2011). Second, the pace of knowledge production is viewed as resulting in nonreconcilable islands of knowledge that do not contribute significantly to our full understanding of a phenomenon of interest (Rousseau et al., 2008; Sandelowski & Barroso, 2007). More critically, case studies tend to remain isolated, stand-alone works with their potential cumulative advantage for advancing knowledge in the field being neglected. By accumulating evidence on similar research interests, however, theory can be replicated in that a theory is grounded in a broader set of studies that focus on an identical phenomenon in similar settings. Substantive theories grounded in particular research contexts are moved to a more generic theory with a broader application, thereby enabling an analytical generalization (Yin, 2009). Yet the goal of a meta-synthesis is building theory by refining or extending existing theory or by generating theory.

The motivation of this article is to develop the design of a meta-synthesis of qualitative case studies. A meta-synthesis is defined as an exploratory, inductive research design to synthesize primary qualitative case studies for the purpose of making contributions beyond those achieved in the original studies. A meta-synthesis constitutes an understanding of synthesis that is interpretive, aiming at synthesizing primary qualitative case studies that have not been intended as part of a unified multisite effect. By projecting and expanding recent works on meta-analysis, I propose eight steps for conducting a meta-synthesis. As such, the meta-synthesis is understood as a complete study itself that aims at extracting, analyzing, and synthesizing qualitative evidence to build theory.

The contributions of this article to the organizational and management literature are twofold. Conceptually, this article offers a distinction among research synthesis as aggregation, interpretation, and translation of evidence. These perspectives represent different understandings of research synthesis that emerge from the basic paradigmatic positions inherent in organizational research. Then, by drawing on research synthesis as interpretation from a postpositivistic point of view, this article provides and illustrates the research process of building theory via meta-synthesizing case studies. Going beyond conventional or systematic literature reviews (e.g., Rousseau et al., 2008; Tranfield, Denyer, & Smart, 2003), a meta-synthesis seeks to synthesize the key variables and underlying relationships across a set of published qualitative case studies to arrive at a refined, extended, or even new theory. Given the above, this article may serve as a conceptual and methodological resource to scholars wishing to synthesize qualitative case studies in the field of organizational and management research.

In the following, a brief description of the broader debate around the synthesis of knowledge within the different paradigmatic positions is offered. Afterward, the article presents the research design of a meta-synthesis of qualitative case studies and illustrates its application using the empirical material of seven primary case studies conducted in the field of dynamic capabilities. The article

concludes with discussing the benefits and limitations that the meta-synthesis approach poses for organizational and management research.

## Synthesis of Knowledge in Organizational and Management Research

The call for a synthesis of knowledge follows the assumption that the foundation of science is the accumulation of knowledge from the research evidence of many studies (Hunt, 1997; Hunter et al., 1982). More generally, *meta*-studies—the analysis of the analysis—are viewed as being grounded in an understanding of knowledge building as an evolutionary sequence (Glass, 1977). The evolutionary perspective of theorizing is based on an understanding of knowledge accumulation as fragmented processes of selection that involve trials in the form of conjectures and errors in the form of refutation (Campbell, 1974; Weick, 1989). From this point of view, knowledge not only stems from a revolutionary progress (Kuhn, 1962) but can also emerge from a backward-oriented integration of previous evidence (Campbell, 1974).

Within the broader array of synthesis activities (Rousseau et al., 2008), three directions can be found that are either informed by a positivist and quantitative tradition or move beyond the properties of positivism to postpositivism or constructivism to especially highlight the interpretive or translative nature of research synthesis activities. Since these understandings of research synthesis as aggregation, interpretation, and translation are grounded in different assumptions, they produce distinct ways of approaching a synthesis of knowledge. Rather than focusing primarily on philosophical debates or on paradigm conflict in detail, this section presents the central features of research syntheses along with associated views of the paradigmatic approaches of positivism, postpositivism, and constructivism (see Table 1).

### Aggregation Synthesis

Following an understanding of research synthesis as aggregation (Rousseau et al., 2008), meta-analysis has moved to a preferred way of establishing a predictive theory or testing theory (Aytug et al., 2012; Cooper, 2010; Hunt, 1997; Wanous, Sullivan, & Malinak, 1989). Aggregative synthesis is rooted in and informed by a positivist and quantitative tradition. Within this perspective, knowledge of the “way things are” is conventionally aggregated in the form of time- and context-free generalizations that can take the form of cause–effect laws (Gioia & Pitre, 1990; Guba & Lincoln, 1994; Lincoln & Guba, 1985). A meta-analysis treats study results as primary data and statistically synthesizes bodies of empirical findings that are dispersed across time and publications (e.g., Aguinis, Pierce, Bosco, Dalton, & Dalton, 2011; Aguinis, Sturman, & Pierce, 2008; Carlson & Ji, 2011; Dalton & Dalton, 2008; Glass, 1977; Schmidt, 2008). The meta-analysis yields an overall estimate of effect size with the detection and estimation of interaction effects being central to the interpretation of the meta-analytic results (Cortina, 2003). Interacting effects provide the boundary conditions of the effects that are hypothesized, thereby generating superior evidence of generalizability as compared with the primary studies (Carlson & Ji, 2011; Cooper, 2010; Hunt, 1997; Hunter et al., 1982). More specifically, the effect sizes constitute an important indicator of the predictive potential and the practical usefulness of a theory (Aguinis, Pierce, et al., 2011). As such, meta-analyses set the standard for what is considered the state of science, for what is known and where future research is needed in a field, and for which theory is considered valid and which one is not (Schmidt, 2008).

### Interpretation Synthesis

By ascribing a more interpretive component to synthesis, other scholars engage in an inductive form of knowledge synthesis to make interpretations across extant qualitative studies. Going

**Table 1.** Three Perspectives on Research Synthesis.

Perspectives on Synthesis	Paradigmatic Assumptions	Ontology: Nature of Reality	Epistemology: Theory/Nature of Knowledge	Methodology: How to Synthesize Knowledge	Role of the Researcher	Type of Synthesizing Knowledge Into Theory
Research synthesis as aggregation Synthesizing entails an aggregative, deductive, accumulative logic; facts serve as a building block that adds to the growing of knowledge; averaging across studies leading to a better truth	Positivist organization theory	Objective truth claims, reality is independent of observers' perception and experience	Knowledge derives from pure reason and can be expressed and analyzed in terms of formal logic; phenomena are stable and fixed; studies come to a final, unarguable summary	Nomothetic: Seek to uncover universal regularities and causal laws of a rule-governed reality	Researcher as independent observer or objective scientist to aggregate quantitative raw data	Establishing predictive theory: Aggregated findings are applicable to other populations or samples; generalizability
Research synthesis as interpretation Synthesizing entails an interpretive logic; general patterns of behavior and perception as valid part of building theory	Postpositivism	Reality exists independently of what anyone thinks, believes, or knows about it and how people perceive it	Knowledge derives from "depth ontology" in which many kinds of evidence are valid; the observable rarely provides a full understanding or explanation of complex social phenomena	Uncover causal linkages or mechanisms that operate in all social phenomena, but cause and effect may not be directed	Researchers strive for objectivity, but the researchers' interpretation of findings is valid as long as it is justified	Building theory: aggregating to produce holistic and causal explanations; variables and relationships as building blocks of theory building; replicability
Research synthesis as translation Synthesizing through the formation of ever more informed constructions; interpretative, reciprocal translations of studies into another; constructing interpretations	(Social) constructivism	Social reality is context-dependent, based on perspective, values, and interests of the observer; reality is not fixed but multiple and constructed	Knowledge is constructed; a variety of constructions exist, aiming at reconstructing the world at the point at which it exists	Idiographic: Gain understanding why individuals create and interpret their world in a particular way; reflexivity; meaning is not inherent in raw data but reconstructed via hermeneutical/dialectical process	Researcher is part of the setting; interpretations are constructed by a single researcher/a team; multivoice; create different interpretations of the phenomena	Interpretive explanation and understanding; synthesis through the formation of more informed constructions to reveal something new or present information that disrupts conventional thinking

Source: Adapted from Gephart (2004) and Guba and Lincoln (1994, 2005).

beyond the deductive logic of classical positivism, the postpositivist view embraces that an underlying common reality exists that can be discovered from research (Gephart, 2004). Knowledge is regarded as social facts that are embedded in social actions and evidence from which some lawful and reasonably stable relationships can be found (Miles & Huberman, 1994). From the subjective, individual, and collective interpretation of these facts, patterns and, later, constructs can be derived that underlie individual and social life (Gioia & Pitre, 1990; Guba & Lincoln, 1994). Researchers look for an individual or a social process, a mechanism, or a structure at the core of events that can be captured to offer a causal description of the forces at work (Miles & Huberman, 1994). Rather than quantitatively aggregating effect size estimates, here, synthesis refers to the *accumulation* of primary evidence with the purpose to generate interpretive explanation rather than prediction. The synthesis entails extracting and analyzing insights from primary studies to identify categories and patterns that emerge across the studies while attempting to preserve the original studies' integrity. The goal is to make a theoretical contribution with contextualization being a central consideration in that the studies' local contexts are taken into account (Yin, 2009).

### *Translation Synthesis*

The understanding of research synthesis as *translation* is especially rooted and applied in medical science, social and political policy, or health care (Denyer & Tranfield, 2003; Tranfield et al., 2003). From a constructivist perspective, reality is assumed to exist in the form of multiple, intangible mental constructions that are dependent for their form and content of the actors holding these constructions (Gephart, 2004; Guba & Lincoln, 1994, 2005). Instead of interpreting knowledge as social facts, evidence constitutes any theme or mode of expression that social actors convey with researchers gearing toward an understanding of how individuals construct and reconstruct knowledge about a phenomenon. Data are viewed as "constructed entities," and the goal is to construct ever more informed reconstructions to finally come to a consensus of how to interpret the substance of the evidence (Gioia & Pitre, 1990). Within this perspective, synthesis entails the informed and meaningful reconstruction of how the study's participants constructed their own understandings. Knowledge is synthesized to better draw science-based recommendations from diverse and fragmented findings, for example, for policy makers and practitioners (Denyer & Tranfield, 2003; Sandelowski & Barroso, 2007; Tranfield et al., 2003). Conducting a synthesis embraces hermeneutic or dialectic processes to translate studies into one another with the aim of drawing cross-case conclusions (Noblit & Hare, 1988).

In this article, an underlying perspective needs to be considered that does not violate but rather preserves the essentials of qualitative case study research while allowing for a synthesis. In this respect, I argue that a meta-synthesis is best accomplished by following the perspective of *interpretation synthesis*. First, as opposed to the larger constructivist sense of translation synthesis (Sandelowski & Barroso, 2007), in this perspective, data, analysis, and proceeded insight are treated as separate entities, with data constituting the empirical material on which scientific evidence is based or from which conclusions are drawn. In this respect, interpretation synthesis implies the belief that the case studies' qualitative evidence can be extracted, analyzed, and subsequently synthesized to build theory. Furthermore, along with its postpositivistic perspective interpretation synthesis is apt for tapping into contextual considerations of patterns, variables, and relationships inherent in the primary studies (Miles & Huberman, 1994). It includes the epistemological position of many case studies conducted in organizational and management research (Piekkari et al., 2009), therefore remaining true to the underlying assumptions of the studies being synthesized (Noblit & Hare, 1988).

## Meta-Synthesis of Qualitative Case Studies

Most broadly, case studies range from inductive, interpretive case studies to more indicative, comparative case study research that is used to build theory in a postpositivist and synthetic fashion (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Flyvbjerg, 2011; Sigglekow, 2007; Yin, 2009). Case study research is driven from the creation of complex designs to address the unique nature of organizational phenomena with different sets of methods (e.g., Miles & Huberman, 1994). The researcher who embarks on case study research is usually interested in a specific phenomenon and wishes to understand it completely. This understanding is not generated by controlling variables but rather by observing all of the variables, their interacting relationships, as well as the contextual conditions that are highly pertinent to the phenomenon under study (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Flyvbjerg, 2011; Yin, 2009). Case study research has the ability to embrace a variety of data sources and a range of different methodologies leading to in-depth qualitative findings that are bound to their specific contexts (Miles & Huberman, 1994; Yin, 2009). According to the aforementioned features of case study research, the research design of a meta-synthesis, and in particular its methodological choices and procedures, needs to be broad enough to retain a sense of contextual diversity. At the same time, it requires synthesizing the case studies' rich insights into theory without producing oversimplifications. Accordingly, a meta-synthesis needs to incorporate a broad yet still manageable set of studies in which sensitivity toward the analysis and synthesis of other researchers' findings can be maintained.

A meta-synthesis is defined as an exploratory, inductive research design to synthesize primary qualitative case studies for the purpose of making contributions beyond those achieved in the original studies. This is a *meta*-study because it involves the accumulation of previous case studies' evidence, and more specifically its extraction, analysis, and synthesis. Consequently, a meta-synthesis does not refer to the reuse of firsthand data stemming from the case researchers' own observations or interviews. Instead, a meta-synthesis occurs at the level at which the original researchers of the primary studies have constructed their insights in accordance with their own understanding and interpretation of the data. In contrast to research reviews seeking to provide a conceptual consolidation of a body of research (Sandelowski & Barroso, 2007; Tranfield et al., 2003), the benefits of a meta-synthesis can be seen in empirically consolidating primary studies to build theory.

As theory building can be differentiated most broadly into extending, refining, or generating theory (Ridder et al., 2009; Ridder, Hoon, & Baluch, 2012; Snow, 2004), first I consider a meta-synthesis to provide the extension of an existing theoretical perspective to a broader range of contextual conditions (Snow, 2004). Here, the meta-synthesis constitutes a replication logic in terms of findings being considered more potent the more cases are shown to support the same theory (Yin, 2009). As such, existing theory is extended from particular research contexts to more generic contexts and is therefore key to the accumulation of knowledge (Colquitt & Zapata-Phelan, 2007; Edmondson & McManus, 2007). Second, the close inspection of the aggregated empirical evidence can serve to refine existing theory in terms of a modification, supplementation, or even negation (Burawoy, 1998; Snow, 2004). The variety inherent in the primary studies can lead to the identification of contradictions and deviating evidence that yield counterinstances of an existing theory (Burawoy, 1998; Sigglekow, 2007). Hence, the meta-synthesis can aim to refine existing theory by introducing meaningful factors such as new boundary conditions or situational constraints to an existing relationship or process (Colquitt & Zapata-Phelan, 2007). Finally, a meta-synthesis is suggested to generate theory. In fact, synthesizing primary case studies is not apt for detecting yet unexplored relationships and processes as the foundation for new theory. However, the meta-synthesis can lead to the identification of a new construct or a relationship the existing theory does not account for or to the substantial reconceptualization of an existing construct (Eisenhardt, 1989; Eisenhardt & Graebner, 2007). Regardless of the type of contribution, subsequent studies can build

on a meta-synthesis by using a new construct, relationship, mechanism, or process-ordered pathway as an input that informs decisions about samples, contexts, or variables to include in a theory-testing framework. Hence, the meta-synthesis seeks to develop inductive theories that may form bridges from rich qualitative evidence to mainstream deductive research (Eisenhardt & Graebner, 2007; Shah & Corley, 2006).

## Research Design for Meta-Synthesizing Qualitative Case Studies

As has been shown so far, meta-synthesizing case studies demands attention to be paid to both analyzing evidence across studies to build theory as well as to ensuring sensitivity toward the contextual considerations of the primary studies. In the following, a research design of a meta-synthesis is proposed of how to build theory via synthesizing qualitative case studies. For developing a rigorous design, I suggest that extending and projecting the method of a meta-analysis into the area of a qualitative synthesis is beneficial. In fact, the meta-analysis relies on an additive model of evidence while downplaying contextual differences (Rousseau et al., 2008). However, it offers a general line of inquiry for exploring variance in relationships across existing studies with these differences being treated as possible intervening variables (Aguinis, Dalton, Bosco, Pierce, & Dalton, 2011; Cortina, 2003; Dalton & Dalton, 2008). Second, the activities and procedures inherent in meta-analysis provide a valuable template for how to cope with the requirements evolving from the analysis and synthesis of existing evidence (Hunter et al., 1982; Kisamore & Brannick, 2008; Wanous et al., 1989). Finally, meta-analyst scholars have generated clear rules of how to report on the conduct of meta-analysis with this replicability being viewed as enhancing the product of a synthesis (Aytug et al., 2012; Carlson & Ji, 2011; Dalton & Dalton, 2008). To acknowledge the specific requirements of case study data, Yin's (2009) approach of the cross-case synthesis of independently conducted studies as well as Miles and Huberman's (1994) techniques of a within-case and a cross-case analysis are considered.

In the following section, I turn to a discussion of the steps involved in a meta-synthesis. Each of these steps is illustrated by an example from an ongoing meta-synthesis study that I conducted in the field of dynamic capabilities. A detailed report of the basic actions and procedures used as well as their purpose in the context of my study is summarized in Table 2. Although this protocol is specific to the interests, analytical path, and goal of my study, a meta-synthesis protocol more generally is apt for substantiating the certain path and logic of a meta-synthesis, thereby enhancing validity and reliability (Pratt, 2008).

The research interests of my meta-synthesis study focus on dynamic capabilities. The dynamic capabilities approach aids in understanding how firms can shape, reshape, configure, and reconfigure their resource base to respond to changing environments (e.g., Eisenhardt & Martin, 2000; Helfat et al., 2007; Teece, Pisano, & Shuen, 1997). In this area, an increasing body of qualitative case studies explores the processes of dynamic capability development by focusing especially on managers and how they collectively reconfigure resources within changing environments. In recent reviews, scholars have started to map and assess this evolving field (e.g., Di Stefano, Peteraf, & Verona, 2010; Wang & Ahmed, 2007); however, until now, the rich body of knowledge on managers' cognitive representations in dynamic capability development has not been accumulated. As an extensive stock of knowledge in a field increases the need to integrate findings in tandem (Aytug et al., 2012), the motivation for my work was to synthesize primary case studies to build theory on the link between managerial cognitive representations and the development of dynamic capabilities.

### *Step 1: Framing the Research Question*

In the first step, I studied the existing literature on dynamic capabilities for the clear identification of a problem or a phenomenon. Whether a guiding theory, a set of competing models, or a point of view

**Table 2.** Meta-Synthesis Protocol.

Steps in Meta-Synthesis	Analytical Goal	Strategy/Analytical Procedure Used	Outcome to Generate a Theoretical Contribution
Framing the research question	Conceptually embedding the meta-synthesis in the field of dynamic capability research, and, more specifically, in the area of managerial cognition; identifying a clear research question addressing the role of managerial cognition in the development of dynamic capabilities	A priori specification	Identification of a well-specified research question facilitates accurately operationalizing variables and extracting appropriate data from primary dynamic capabilities studies
Locating relevant research	Identifying the body of dynamic capability research that is relevant for the research question of interest. Following an exhaustive literature search helps to prevent from exclusion of important information, thus strengthening the findings because they are generated from a broader base	Determining the keywords; search string; formulating an exhaustive search strategy entailing main and complementary search steps	Locating a sample of 87 studies on dynamic capabilities and cognition published in 37 journals from various areas; final sample of 23 qualitative case studies; ensure reliability
Inclusion criteria	Five precise inclusion and exclusion criteria are specified, applied, and presented to determine what studies to include in terms of the method, theoretical foundations, research focus, initial research question, and quality	Developing an inclusion/exclusion criteria list; discussing clear exclusion criteria	Limiting the 23 qualitative case studies to a set of 7 case studies finally incorporated in the meta-synthesis; providing clear exclusion criteria; ensure validity, reliability
Extracting and coding data	Carefully reading the full text of each study. Coding study characteristics as well as the proceeded insights of the primary studies according to the research question on managerial cognition in dynamic capability development	Developing and pretesting a coding form; multiple coders; check for intercoder ratings	Order, code, and categorize evidence from each of the studies; sensitivity for contextual considerations; valid coding form; intercoder ratings
Analyzing on a case-specific level	Identifying a sequencing of variables that have been found in each case to be the most influential in accounting for how managerial cognition affects the development of dynamic capabilities	Case-specific causal networks	Identifying themes, core concepts, patterns, or relationships in each case
Synthesizing on an across-study level	Merging the case-specific causal networks into a meta-causal network. Accumulating the sequencing of variables at a cross-study level to arrive at a general pattern among these variables	Meta-causal network, variable ratings	Identification of a pattern; managerial cognitive processes as central variable; rating of the variables to ensure validity
Building theory from meta-synthesis	Identification of the concept of cognitive shifts that explains interdependencies between managerial cognitive representations, the adjustment of dynamic capabilities, and a renewal of the resource base in environments characterized by disruptive changes or follow-on opportunities; demonstrate a significant contribution	Linking the results back to the literature on dynamic capabilities and cognition	Identification of the concept of cognitive shifts; arguing for a contribution to the dynamic capabilities approach
Discussing	Discussion of the results of the meta-synthesis study and potential limitations	Discussing rigor, reliability, and validity	Legitimizing the validity and reliability of the procedure and activities used



about a topic, a meta-synthesis starts with a conceptual framing of the topic. For organizing the meta-synthesis, I referred to the dynamic capabilities approach with my interest gravitating toward recent works seeking to advance our understanding of the development of dynamic capabilities by focusing on creative managerial and entrepreneurial acts (Augier & Teece, 2009; Eisenhardt & Martin, 2000; Helfat et al., 2007). Within this view managers are seen as playing a central role in identifying strategic opportunities, in orchestrating organizational assets, and in capturing business models and new organizational forms (Augier & Teece, 2009). By referring to dynamic capabilities from a managerial cognition approach (Gavetti, 2005), empirical studies have increasingly explored what managers interpret and act on and found that managerial perceptions affect the behavior toward the renewal of the firm's resource base. To build on these studies, I formulated a first broad research topic on the role of cognition in the development of dynamic capabilities. Through a series of iterations that involved testing this topic against the current literature and existing empirical studies, a more nuanced research question emerged. Finally, I focused the meta-synthesis on this research question: "How and why do managerial cognitive representations shape the development of dynamic capabilities?" Addressing this research question aids in aggregating the current knowledge of managers interpreting and acting on dynamic capabilities, thereby providing theoretical insight into managerial cognitions affecting the development of dynamic capabilities in dynamic, highly contested environments.

In contrast to the broader research interests of a conventional literature review or a systematic review (Denyer & Tranfield, 2003), a meta-synthesis takes advantage of a well-specified, theoretically informed research question. In my study, the well-specified research question informed the specification of the range of studies to synthesize and enabled me to extract appropriate evidence from the primary studies. Up to a point, it is proposed that the more fine-grained and narrow the research question, the greater the conceptual clarity and interpretability of the results (Yin, 2009). However, any advantage gained from the interpretability of empirical results is offset by considerations of the availability of evidence for the meta-synthesis. During the further conduct of my meta-synthesis, the research question proved to be broad enough to open up a relevant set of high-quality case studies, while its narrowness enabled to identify a set of studies that corresponded to my topic of interest.

### **Step 2: Locating Relevant Research**

In the next step, I started to identify the bodies of research that can be deemed to be relevant for my meta-synthesis interest. To locate the set of existing qualitative case studies, I based the search on the Social Science Citation Index (SSCI) database of Thomson-ISI Web of Science. As an initial search based on the search string "dynamic capabilities" OR "dynamic capability" AND "cogn\*" AND "case stud\*" yielded no valid results, I realized that this search string was too narrow. Consequently, I began more broadly by retrieving all articles that were published in the Business and Management categories of the ISI Web of Science database with topics containing the expressions "dynamic capability" or "dynamic capabilities." This yielded a set of 1,604 contributions. I refined the search by reducing the set of contributions to the keyword "cognition" and the derivatives of the root "cogni" (cogni\*: cognition, cognitions, cognitive, cognizance). A main search using the terms "dynamic capability" OR "dynamic capabilities" in combination with "cogni" generated valid results, revealing that no additional terms were needed. These keywords were used as a selection criterion in *topic* (title, keyword, abstract), resulting in an initial sample of 81 contributions published in journals or book chapters/conference proceedings. This basic search was complemented by cross-checking the resulting article list with the sample of articles found in reviews conducted in the field of dynamic capabilities. In addition, the journals having received the most hits during the database search were manually searched from 1997 to the present for the keywords of "dynamic

capabilit\*” AND “cogni\*” AND “case stud\*” at Wiley Online Library. As a result, six more articles were found that had not already been identified by the electronic database search. For the literature search strategy see Table 3.

Overall, a sample of 87 studies was identified, published between January 1997 and August 2012. The year 1997 was chosen as the starting point of the search because this was the year in which Teece et al. (1997) laid the theoretical foundations for the development of this research field. The search incorporated 37 journals with different rankings and stemming from various business areas, thereby acknowledging the widespread use and publication of dynamic capability studies in areas such as strategic management, entrepreneurship, or product innovation. In addition, this broad set of journals contains venues that are viewed as especially open for publishing qualitative case study research, such as the *British Journal of Management* and *Journal of Management Studies*.

After a first screening of the titles and the abstracts, 16 articles were identified as false positives and excluded due to irrelevant citations ( $n = 71$ ). Most interesting, the yield of relevant studies was lower from articles categorized as conference proceedings than journal articles. Eight of the 12 articles published in conference proceedings were excluded, compared with 8 of the 75 being categorized as journal articles. While identifying the qualitative case studies within the subset of the 71 articles, it became obvious that the abstracts and keywords varied considerably in their content, with some failing to state the research method used. After obtaining the articles' full text versions, I manually screened and categorized the articles' introductory sections and/or methods sections and categorized them more broadly as conceptual works (16), review studies (2), quantitative studies (23), or qualitative research studies (30). Finally, each of the 30 qualitative research studies was identified as a grounded theorizing study (2), historical analysis (3), process research (2), or qualitative case study (23). Overall, the full-text search generated a list of 23 qualitative case studies referring to dynamic capabilities and managerial cognition. For a list of the initial sample of articles retrieved from the literature search as well as their categorization see Appendix A.

Ideally, any synthesis should be exhaustive in its inclusion of studies by selecting the maximum number of eligible primary sources (Aytug et al., 2012; Kisamore & Brannick, 2008). By focusing my search strategy on published articles, conference proceedings, and book chapters, I discarded dissertations and unsubmitted or unpublished research studies. Relying on published literature is not without risk since only a comprehensive search is associated with limiting the potential of publication bias (Kepes, Banks, McDaniel, & Whetzel, 2012; McDaniel, Rothstein, & Whetzel, 2006). However, benefits of precluding unpublished articles entail the increased scientific rigor resulting from a peer-reviewed publication process as well as the availability of these works for evaluating the sources the meta-synthesis relies on. Similar to the file-drawer problem (Dalton, Aguinis, Dalton, Bosco, & Pierce, 2012), it can be proposed that the type of empirical research being conducted may also affect the likelihood of publication. More critically, qualitative studies are assumed to be less likely or even more difficult to get published, especially in top-tier journals. Searching within a broad range of journals enabled me to incorporate higher to lower ranked venues from the various disciplines the dynamic capabilities research is rooted in. Furthermore, the use of complementary electronic and manual search techniques ensured that material is not missing either through the inadequacies of indexing or through the selective coverage of databases. Taken together, a systematic, explicit, and transparent search process generates a rigorous meta-synthesis study, thereby acknowledging that ill-defined or biased searches are likely to result in an inadequate database and later, inaccurate results (Aytug et al., 2012; Cooper, 2010).

### **Step 3: Inclusion/Exclusion Criteria**

The next step in the conduct of the meta-synthesis is the appropriate inclusion of relevant qualitative case studies. Specifying and applying the inclusion/exclusion criteria is considered as being of

**Table 3.** Literature Search Strategy.

I. Main Search: Electronic Database Search: Web of Science: Search of the topic (title, abstract, keywords) in published articles in the field of economy and management (Search string: SSCI Web of Science: Topic = (dynamic capability) OR Topic = (dynamic capabilities); refined by Web of Science Categories = (MANAGEMENT OR BUSINESS) AND Document Types = (ARTICLE OR MEETING OR BOOK) AND Languages = (English) AND Topic = (cogni\*))

Journal	Coverage: Date Searched	Number of Relevant Articles (n = 68)
<i>Academy of Management Journal</i>	January 1997-August 2012	(1)
<i>AOM Annals</i>	January 1997-August 2012	(1)
<i>AOM Review</i>	January 1997-August 2012	(1)
<i>British Journal of Management</i>	January 1997-August 2012	(3)
<i>Creativity and Innovation Management</i>	January 1997-August 2012	(1)
<i>Entrepreneurship Theory and Practice</i>	January 1997-August 2012	(1)
<i>Group Decision and Negotiation</i>	January 1997-August 2012	(1)
<i>Human Resource Management Review</i>	January 1997-August 2012	(1)
<i>IEE Transactions of Engineering Management</i>	January 1997-August 2012	(1)
<i>Industrial and Corporate Change</i>	January 1997-August 2012	(3)
<i>Industrial Marketing Management</i>	January 1997-August 2012	(1)
<i>Industry and Innovation</i>	January 1997-August 2012	(2)
<i>International Journal of Service Industry Management</i>	January 1997-August 2012	(1)
<i>International Journal of Technology Management</i>	January 1997-August 2012	(1)
<i>Journal of Business Research</i>	January 1997-August 2012	(1)
<i>Journal of Business Venturing</i>	January 1997-August 2012	(1)
<i>Journal of Evolutionary Economics</i>	January 1997-August 2012	(1)
<i>Journal of Institutional Economics</i>	January 1997-August 2012	(1)
<i>Journal of Management</i>	January 1997-August 2012	(1)
<i>Journal of Management Information Systems</i>	January 1997-August 2012	(1)
<i>Journal of Management and Organization</i>	January 1997-August 2012	(1)
<i>Journal of Management Studies</i>	January 1997-August 2012	(6)
<i>Journal of Product Innovation Management</i>	January 1997-August 2012	(1)
<i>Journal of Service Research</i>	January 1997-August 2012	(1)
<i>Management Decision</i>	January 1997-August 2012	(3)
<i>Management Learning</i>	January 1997-August 2012	(2)
<i>Organization Science</i>	January 1997-August 2012	(8)
<i>Organization Studies</i>	January 1997-August 2012	(3)
<i>Public Choice</i>	January 1997-August 2012	(1)
<i>R&amp;D Management</i>	January 1997-August 2012	(1)
<i>Research in Organizational Behavior</i>	January 1997-August 2012	(1)
<i>South African Journal of Business Management</i>	January 1997-August 2012	(1)
<i>Strategic Entrepreneurship Journal</i>	January 1997-August 2012	(1)
<i>Strategic Management Journal</i>	January 1997-August 2012	(10)
<i>Strategic Organization</i>	January 1997-August 2012	(1)
<i>Technology Analysis and Strategic Management</i>	January 1997-August 2012	(1)
<i>Technovation</i>	January 1997-August 2012	(1)
Conference Proceedings/Book Chapter	Coverage: Date Searched	Number of Relevant Articles (n = 13)
<i>Academy of Management Proceedings</i>	January 1997-August 2012	(1)
<i>Proceedings of the 12th European Conference on Knowledge Management, 2011, Germany, Vols. 1, 2</i>	January 1997-August 2012	(2)
<i>PICMET 2010: Technology Management for Global Economic Growth, 2010, Portland, OR</i>	January 1997-August 2012	(1)

(continued)

**Table 3. (continued)**

Conference Proceedings/Book Chapter	Coverage: Date Searched	Number of Relevant Articles ( $n = 13$ )
<i>Proceedings of the 5th European Conference on Innovation and Entrepreneurship, 2010, Greece</i>	January 1997-August 2012	(2)
<i>Eighth Wuhan International Conference on E-Business, 2009, China</i>	January 1997-August 2012	(1)
<i>Proceedings of the 10th European Conference on Knowledge Management, Vols. 1-2, 2009, Italy</i>	January 1997-August 2012	(1)
<i>Proceedings of the European Conference on Intellectual Capital, 2009, Netherlands</i>	January 1997-August 2012	(1)
<i>Proceedings of the Fifths International Symposium on Management of Technology, 2007, China</i>	January 1997-August 2012	(1)
<i>Proceedings of the International Conference on Management Science and Engineering, 2007, China</i>	January 1997-August 2012	(1)
<i>Proceedings of the International Conference on Industrial Engineering and Engineering Management</i>	January 1997-August 2012	(1)
<i>Proceedings of the International Conference on Intellectual Capital, Knowledge Management, and Organizational Learning</i>	January 1997-August 2012	(1)

II. Complementary Search

I. Manually screening the references in past reviews conducted in the field of dynamic capabilities for the keywords *cognition AND case study*

Review Articles	Type of Review/Data Coverage	Total Number of Articles	Number of Additional Relevant Articles ( $n = 3$ )
Barreto (2010)	Selected review of research on dynamic capabilities between 1997 and 2008	38	Pablo et al. (2007), Rosenbloom (2000), Salvato (2003)
Di Stefano, Peteraf, and Verona (2010)	Exhaustive review of dynamic capability articles between 1995 and 2008	40	
Wang and Ahmed (2007)	Review of key empirical studies pertinent to dynamic capabilities between 1995 and 2005	32	
Zahra, Sapienza, and Davidsson (2006)	Representative review of studies on capability development between 1995 and 2005	16	

2. Manual search in five key journals publishing dynamic capability research: Electronic database: Wiley Online Library: Search of "full text" in published works in the field of management (*Search string: 'dynamic capabilit\*' AND 'cogni\*' AND 'case stud\*' IN 'full text'*)

Journals	Coverage: Date Searched	Number of Additional Relevant Articles ( $n = 3$ )
<i>British Journal of Management, Industrial and Corporate Change, Journal of Management Studies, Organization Science, Strategic Management Journal</i>	January 1997-September 2012	Holbrook (2000), Martin (2011), Salvato (2009)

central importance since the validity of a synthesis depends on the quality of the primary studies on which it is based (Dalton & Dalton, 2008). According to my research question, I defined clear inclusion/exclusion criteria, which are presented in Table 4.

Following these predetermined criteria, I excluded case studies if they were quantitative in character or if they used cases as an illustrative example, thereby reducing the sample of 23 studies to 21 studies. In addition, I included only articles explicitly framing the study in the dynamic capabilities approach. Given the plurality of meaning embedded in the term “dynamic capabilities” and taking into consideration that dynamic capability scholars have used this term in a variety of different ways (e.g., core competency, adaptive capability, absorptive capability, innovative capability), I looked for empirical articles that follow the seminal definition by Teece et al. (1997, p. 515) and focus on dynamic capabilities as the processes that are directed toward a change in the firms’ resource base. Furthermore, the meta-synthesis was limited to studies that provide a substantive contribution to managerial cognitions in the processes of dynamic capability development. A final step entailed reducing to studies whose a priori research question or purpose refers to managerial cognition in the development of dynamic capabilities ( $n = 9$ ). Applying this strict criterion enables maintaining that the evidence on managerial cognitive representations was not collected incidentally. More specifically, only studies were included in which the development of dynamic capabilities and its associated managerial cognitive representations are deliberately described by the studies’ participants rather than arbitrarily labeled by the researchers. According to this criterion, two more case studies were excluded. Overall, the final sample consisted of seven studies that were all checked in terms of their quality. I ensured that all studies provide a clear linkage between theory and empirical evidence and reflect the methodological standards that scholars such as Yin (2009) and Eisenhardt (1989; Eisenhardt & Graebner, 2007) have induced to the field. No further studies were excluded.

Overall, 30 articles (35% of the total number of hits of 87) were read in full text, and 7 of these met the study inclusion criteria and were ultimately incorporated in the meta-synthesis (see Appendix B). These seven studies were conducted between 2000 and 2010 in different countries and industries, involving firms that were concerned with the development of dynamic capabilities in dynamic, highly contested environments. The studies under synthesis aim at extending or building theory with the use of multiple data sources following a clear research question. They entail both single cases and multiple cases and use different case study designs, ranging from inductive theory building to the extended case method. All cases explicitly describe the methods of analysis, thereby applying research strategies consistent with best practices as recommended by Eisenhardt (1989) or Yin (2009).

#### *Step 4: Extracting and Coding Data*

A further step is to extract, code, and categorize evidence from the studies under synthesis (Noblit & Hare, 1988). With regard to the empirical material a meta-synthesis is based on, it is important to note that the meta-synthesist operates at the level at which the original researchers have constructed insights according to their own understanding and interpretation of the data. Instead of the raw data of the primary studies, the proceeded insights that the researchers of these studies have generated constitute the “data” of a meta-synthesis.

To obtain the data necessary for my meta-synthesis, first, a coding form was developed according to the question of interest (Duriau, Reger, & Pfarrer, 2007). After generating a set of a priori notions about what items to code, together with a coresearcher familiar with the field of dynamic capability research, we read through three randomly selected studies to identify further coding items that might be relevant, thereby constantly refining and modifying the coding form. We also included open-ended questions and blank spaces into the coding form to ensure that the proceeded insights could be recorded as they were portrayed by the original researcher, thereby conversing with as much of the original information as possible. The coding form with its 42 coding items is presented in Table 5.

**Table 4.** Inclusion/Exclusion Criteria.

Criteria	Rationales	Reasons for Exclusion
(1) Qualitative case study	I used this criterion to narrow the meta-synthesis to articles relying on qualitative case studies. The criterion ensures that there is no difference between the research method the primary researchers claim to have used and the approach actually used. Articles are excluded that use, for example, illustrative case examples to give an in-depth example of how a framework can be applied and that were not collected purposely to understand dynamic capabilities. In addition, case studies primary relying on quantitative data are excluded.	Illustrative case examples (Agarwal & Helfat, 2009; Taylor & Helfat, 2009)
(2) Articles initially framed in the dynamic capabilities approach and referring to the seminal notion of dynamic capabilities (Teece et al., 1997)	I based the choice on dynamic capabilities to focus specifically on articles in which the authors build on Teece et al. (1997) seminal notion of dynamic capabilities as “the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments. Dynamic capabilities thus reflect an organization’s ability to achieve new and innovative forms of competitive advantage given path dependencies and market positions.” Articles are also included that are theoretically framed in the dynamic capabilities approach, thereby drawing on an understanding of dynamic capabilities as provided by Eisenhardt and Martin (2000).	Relying on a broader understanding of dynamic capabilities, e.g., path dependency, innovation capability, heuristics, learning, knowledge (Bingham & Eisenhardt, 2011; Demartini, 2007; Dixit et al., 2007; Lanzara & Patriotta, 2007); referring to dynamic capabilities approach only in the discussion/ contributions part (Aspara et al., 2011; Gilbert, 2006; Salvato, 2003; van Riel & Lievens, 2004)
(3) Refer to the processes of dynamic capability development and provide strong focus on cognition	I used this criterion to identify the case studies on the development of dynamic capabilities that have a strong emphasis on managerial cognitive representations. This entails the inclusion of articles that provide a substantive contribution to the role of managerial cognition in the processes of dynamic capability development.	No focus on the development of dynamic capabilities (Autio et al., 2011; Boerjesson & Elmquist, 2011; Holbrook, 2000; McDermott & Coates, 2007)
(4) Focus on managerial cognition in the study’s a priori goals, research question, research interests	This criterion enables including dynamic capability studies whose a priori research question(s) or goal(s) are closely connected to managerial cognition. Therefore, case studies are included that provide a primary focus on the cognitive approach to explain changes in the development of dynamic capabilities.	Managerial cognition perspective not included in the initial research question (Martin, 2011; Pablo et al., 2007)
(5) Check quality	I checked all studies with regard to quality. According to recent standards and guidelines (Eisenhardt, 1989; Yin, 2009) I checked the studies in terms of rigorous reporting style, clear linkage between theory and empirical evidence, clear contextualization of the case, multiple data sources, clarity concerning the theoretical purpose.	No further studies were excluded due to quality assessment

**Table 5.** Coding Form.

		Case Study ID				
Item No.	General details of the study	Coder 1 (name, date of coding)		Coder 2 (name, date of coding)		Agreement/ Differences in codings
		Coded as	Page no./ Quote	Coded as	Page no./ Quote	
						Reconciled codes
1	Author(s)					
2	Title					
3	Journal					
4	Date					
5	Type of study					
	<b>What are the authors trying to achieve?</b>					
6	Broader aim(s) of the study					
7	Research question(s)					
8	Intended contribution					
	<b>Theoretical framing</b>					
9	How is the study informed by/linked to dynamic capabilities research?					
10	How is the study informed by/linked to cognition research?					
11	Concept/understanding of dynamic capabilities used					
12	Concept/understanding of cognition used					
	<b>Setting/context in which study was conducted</b>					
13	Country					
14	Industry, sector					
15	Research context (e.g., discontinuous environmental shifts, disruptive change)					
16	Research site selected (type of organization)					
17	Research setting (e.g., six retail organizations)					
	<b>Methodology/methods</b>					
18	Research design (e.g., historical case study; inductive, theory building case study)					
19	Approach (e.g., theory building, theory elaboration)					
20	Unit of analysis; focal process					
21	Number of cases included					
22	Sampling strategy (e.g., purposive, theoretical)					
	<b>Data collection techniques and sources</b>					
23	Timing and sequencing of data collection (e.g., retrospective, real time)					
24	Data collection techniques used by the original researcher (e.g., semi-structured interviews, focus groups, on-site meetings)					

(continued)

**Table 5. (continued)**

		Case Study ID					
Item No.	General details of the study	Coder 1		Coder 2		Agreement/ Differences in codings	Reconciled codes
		(name, date of coding)	Page no./ Quote	(name, date of coding)	Page no./ Quote		
25	Data sources (transcripts, field notes, archival data)						
26	Amount of data conducted/validity (number of interviews, amount of documents)						
27	Data management techniques (e.g., case history)						
	<b>Data analysis approach</b>						
28	Methods of data analysis (e.g., coding scheme, constant comparison, pattern matching)						
29	Analysis techniques (e.g., data matrix, visual display)						
	<b>What are the proceeded insights?</b>						
30	Key findings as summarized by the original researcher(s) in abstract/introduction /conclusion section (verbatim paraphrased)						
31	Events, factors, or patterns in managerial cognitive processings as portrayed by the original author(s) (verbatim paraphrased)						
32	Effects of managerial cognition on adjusting the dynamic capability and/or altering or renewal of the resource base as portrayed by the original author(s) (verbatim paraphrased)						
33	Environmental conditions						
34	Visualization of conceptual model or framework as provided by the original author(s)						
	<b>Discussion</b>						
35	Discussion of key findings						
36	Contribution(s) as stated by the original researcher(s)						
37	Contribution to the field of dynamic capabilities						
	Contribution to other fields (e.g., psychological foundation of strategy, learning theory, strategy)						
	Limitations as discussed by the authors						
38	Limitations (e.g., methodological)						
	<b>Overall assessments</b>						
39	How relevant is this study to the underlying question?						
40	How reliable/convincing is the study?						
41	Missing information, logical inconsistencies?						
42	Further comments						



Together with the coresearcher, we coded each primary study for the descriptive characteristics such as type of case study design, setting, number of cases, or data sources. We carefully read each of these studies and then independently coded them according to the coding form. After completing the individual extractions we merged the individual coding forms into a combined database. Coding a broad range of different study characteristics was beneficial as it not only informed us about the specific nature of the body of studies under synthesis but also sensitized us for potentially relevant contextual factors.

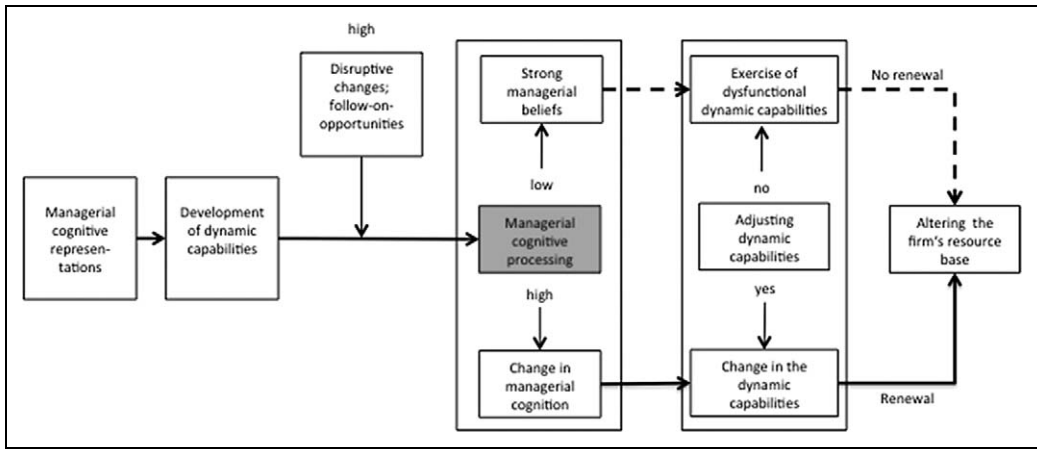
To record the relevant evidence from each of the studies included in the meta-synthesis, we especially focused on the findings section and the discussion/contribution section. Concepts similar to dynamic capabilities (e.g., capabilities, organizational capabilities) were coded only if the specific understanding of the construct overlapped significantly with the primary definition used in this study. At the same time, we coded evidence on the concept of cognition as well as similar notions such as “mental models,” “attention allocation,” “resource cognition,” and “cognizance.” Following the aforementioned understanding of dynamic capability development and managerial cognition, we listed the events, factors, and patterns that occurred around the “managerial cognitive processings” as well as how they influenced, facilitated, or hindered the “adjustment of a dynamic capability” and turned these elements into variables. This also included listing information on any potential contextual variables in which these managerial cognitive processings appeared such as situational aspects, social systems, or environmental conditions.

As a critical decision in research synthesis entails what features to code (Aytug et al., 2012; Kisamore & Brannick, 2008), the process of extracting and coding data was guided by a reliable and valid coding form. To ensure inter-reviewer consistency during the course of coding, any discrepancies that emerged were carefully documented in the coding form and resolved by discussions and further rereadings of the original studies. The emergent codes were subsequently fed into the coding form. Overall, working with two synthesizers—both as readers and coders—is beneficial for reducing mistakes in data recording as well as for avoiding the omission of relevant material (Miles & Huberman, 1994).

### *Step 5: Analyzing on a Case-Specific Level*

For analyzing the studies under synthesis, first, a technique has to be applied that not only allows for an analysis on a case-specific level but also is apt for addressing the meta-synthesis research question and aims. As I was interested in the intersection between managerial cognitive representations and the processes of dynamic capabilities development, a causal network technique was chosen (Miles & Huberman, 1994). We explored each case study in terms of the variables which logically influence others, which variables are likely to appear together and which not, and which variables have to happen first for others to happen later (Miles & Huberman, 1994). Carefully mapping each case in a case-specific causal network alerted me to the variables that go together and contrast with other variables, thereby inviting a closer look at what might be an underlying theme or pattern. As a result, seven case-specific causal networks emerged that connect the particular variables and relationships found in each case into a coherent picture. One of these causal networks, for example, displays that the variable of “preexisting managerial cognitive representations” affects the way in which a dynamic capability is created. If these mental models become inaccurate, for example, due to disruptive environmental changes, they foster the development of a “dysfunctional dynamic capability,” thereby hindering a “change in the firm’s resource base” (Danneels, 2010).

To ensure the validity of the causal networks, together with my coresearcher, we independently developed each of these displays. Divergent judgments on variables and/or a potential relationship were assessed, recorded, and resolved to capture the substantive issues relevant to the interpretation. Overall, the causal networks proved to be beneficial in my study as they enabled both reflection on the cases’ salient properties of the context as well as the combination of particular



**Figure 1.** Meta-causal network.

instances around dynamic capability development into a more general pattern. However, further techniques for analyzing primary qualitative evidence such as chronological displays, causal maps, or a processual matrix may be viable depending on a meta-synthesis’s specific research question, interest, and goal.

**Step 6: Synthesis on a Cross-Study Level**

To move from a case-specific level to a cross-study level analysis, the next step was to merge the sequences of variables identified in each of the case-specific causal networks into a meta-causal network. The case-specific causal networks provide the foundation to further explore how the studies under synthesis are related or dissonant through a compare and contrast exercise at a cross-case study level (Miles & Huberman, 1994). As such, a meta-causal network goes beyond the individual studies to let mechanisms, causalities, or causal conditions and their outcomes emerge from the analysis across a set of studies (Miles & Huberman, 1994). We matched each case-specific causal network to see how specific variables performed across the complete set of cases. As a result, a meta-causal network emerged incorporating a pattern of a sequencing of variables that were found to be meaningful across all cases, namely “managerial cognitive representations,” “dynamic capability development,” “environmental conditions,” “managerial cognitive processing,” “adjustment of dynamic capabilities,” and “altering the resource base” (see Figure 1).

In particular, the variable of managerial cognitive processing turned out to be central for explaining this pattern, with a low scope of cognitive processing inhibiting the adjustment of a dynamic capability. For instance, the exercise of less appropriate dynamic capabilities was affected by low managerial cognitive processing through which managers were constrained in coping with changing environments. In turn, no alteration of the resource base was achieved. In contrast, a high scope of cognitive processing was associated with an adjustment of the dynamic capability, thereby leading to a renewal of the resource base.

To test and refine this emerging pattern (Miles & Huberman, 1994), I assessed the variance in environmental change, managerial cognitive processing, adjustment of dynamic capabilities, and renewal of the resource base in each of the studies, thereby enhancing the validity of the emerging pattern (Miles & Huberman, 1994). In this respect, the variable rating list in Table 6 indicates that in disruptive changes or turbulent environments, extensive managerial cognitive processings are associated with a change in managerial cognition that leads to an adjustment of a dynamic capability, and, in turn, to a

**Table 6.** Variables and Their Ratings.

Cases	Managerial Cognitive Representations	Development of Dynamic capability	Environmental Change	Managerial Cognitive Processing	Adjusting Dynamic Capabilities	Altering the Resource Base
1. Danneels (2010)	Manager's mental models	Capability to alter the firm's resource base	High: Environmental turbulence	Low: Inaccurate mental models	No: Continue to develop the dysfunctional dynamic capability	No
2. Tripsas and Gavetti (2000)	Strong managerial beliefs	Evolution of capability of directing search processes in a new learning environment	High: Radical technological change	Low: Cognitive dissonance	No: Continue to develop the dysfunctional dynamic capability	No
3a. Laamanen and Wallin (2009), Case 1: Phi	Manager's attention allocation emphasis toward partners	Capability to integrate external technological resources	High: Discontinuous industry change; collapse of the internet-driven business	Extensive: <sup>a</sup> Management's overall thinking evolved in four stages	Change in the capability emphasis to build new capabilities	Yes (++++) <sup>a</sup>
3b. Laamanen and Wallin (2009), Case 2: Rho	Manager's attention allocation emphasis on large corporate customers	Capabilities to sell large customized systems integration projects	High: Discontinuous industry change; collapse of the Internet-driven business	Extensive: <sup>a</sup> Management's overall thinking evolved in four stages	Change in the capability emphasis to build new capabilities	Yes (+) <sup>a</sup>
3c. Laamanen and Wallin (2009), Case 3: Sigma	Manager's attention allocation emphasis	Software development abilities	High: Discontinuous industry change; collapse of the Internet-driven business	Extensive: <sup>a</sup> Management's overall thinking evolved in four stages	Change in the capability emphasis to build new capabilities	Yes (++) <sup>a</sup>
4. Salvato (2009)	Mindful activities of managers; managerial attention	Product development process	Highly competitive product market	N/A, encoding of ambiguous outcomes; manager's interpretation of experiments	Adaptation of product development routines	Yes
5a. Narayanan et al. (2009), Case 1	Managerial cognitive orientation	Fast cycle product development	Highly dynamic environment; follow-on opportunities	Moderate <sup>a</sup>	Discontinue to develop dysfunctional dynamic capability	Yes

(continued)

**Table 6. (continued)**

Cases	Managerial Cognitive Representations	Development of Dynamic capability	Environmental Change	Managerial Cognitive Processing	Adjusting Dynamic Capabilities	Altering the Resource Base
5b. Narayanan et al. (2009), Case 2	Managerial cognitive orientation	Chemical biology R&D platform	Highly dynamic environment; follow-on opportunities	High <sup>a</sup>	Developing the dynamic capability	Yes
6. Pandza (2011)	Group-level cognitive frames about a particular capability	Capability development	High: Rapid development of innovative new medicines	Group's perceptions of the value of organizational capabilities; creative and social framing practices	Engage in autonomous activities to develop dynamic capabilities	Yes
7. Keil et al. (2008)	Cognizance formation; awareness	Building the capability to access and make sense of corporate venture capital program activities	High: Disruptive change; high decision-making uncertainty	Mechanisms that underlie cognizance formation; cognitive filters; creation of awareness or cognizance	Capability internalization	N/A

<sup>a</sup>As measured in the primary case studies.

change in the resource base. However, the exercise of dysfunctional dynamic capabilities is associated with low managerial cognitive processing resulting in inaccurate mental models (see Table 6).

Overall, a pattern of changing managerial cognitions emerged that was associated with differences in the development of dynamic capabilities. These “cognitive shifts” constitute a change in how managers understand, frame, and predominantly view the nature of dynamic capabilities in place. In this respect, the meta-synthesis illustrates managers as having preexisting cognitive representations that direct the way in which a dynamic capability is created. In dynamic environments that offer new follow-on opportunities, cognitive shifts enable managers to reinterpret the internal progress of dynamic capability development, its appropriateness, and consequently to orchestrate the activities necessary for an adjustment.

### *Step 7: Building Theory From Meta-Synthesis*

As a result, this meta-synthesis reveals that in dynamic environments that offer new follow-on opportunities a cognitive shift enables managers rendering an exercised dynamic capability more appropriate. By synthesizing evidence around a variety of different cognitive aspects in dynamic capability development from diverse settings, the concept of cognitive shifts is offered. The concept of cognitive shifts links back to a processual perspective on the development of dynamic capabilities in disruptive environmental changes. Scholars have acknowledged that managerial cognition can make a difference in directing the development of dynamic capabilities (Gavetti, 2005). Managers create cognitive representations to perceive environmental changes and to facilitate information processing (Helfat et al., 2007). This meta-synthesis shows that managerial cognitive representations are not to be understood as rigid mental models. However, the concept of cognitive shifts underscores that managers need to undergo a change in their thinking, thereby being capable of uncoupling from past experience and dissociating from current business assumptions and, thus, to generate a more complete picture of the relevance and appropriateness of extant capabilities. This does not mean that a shift in cognition necessarily leads to discontinuing the exercise of dysfunctional dynamic capabilities. However, if managers reinterpret or rethink the nature and appropriateness of dynamic capabilities in place, they may orchestrate the multilevel routines necessary to actualize a dynamic capability. Overall, the concept of cognitive shifts makes a contribution as it breaks down the hard-to-define area of cognitive processes into the discrete event of a shift in managerial cognitive representations that can be isolated and analyzed and is a broad enough construct to map the full territory of dynamic capabilities development. Therefore, subsequent studies can build on this meta-synthesis by using the concept of cognitive shifts as input for making decisions about samples, contexts, or variables to include in the theory-testing framework.

### *Step 8: Discussion*

In a final step, general limitations about heterogeneity in the primary studies or the way the meta-synthesis was conducted need to be discussed. This meta-synthesis entails a consistent set of qualitative case studies that all refer to a similar understanding of the concept of managerial cognition and of dynamic capabilities and use rigorous and sound methodologies. A limitation results from restricting the meta-synthesis study to 7 qualitative case studies as compared to a set of 30 studies initially identified in the field. Being very inclusive with regard to the studies incorporated entails the risks of reducing the range of interpretations of a phenomenon. Nevertheless, I maintain these results constitute a valuable contribution to managerial cognition in the development of dynamic capabilities. In this respect, this meta-synthesis goes beyond recent reviews conducted in the field of dynamic capability research. While these reviews mostly rely on a representative sample of published studies to generate a conceptual consolidation, this meta-synthesis offers an empirical consolidation based on an exhaustive search strategy. As such, all of the dynamic capabilities’ research published from 1997

to 2012 was located, thereby including business areas such as innovation (e.g., *Journal of Product Innovation*) or entrepreneurship (e.g., *Entrepreneurship Theory and Practice*, *Strategic Entrepreneurship Journal*).

## Discussion

In this article, I offer a distinction among research syntheses as aggregation, interpretation, and translation that emerges from the basic paradigmatic positions inherent in organizational research. By following interpretation synthesis from a postpositivistic point of view, this article makes a contribution by providing the research design of a meta-synthesis. The goal of a meta-synthesis is to analyze constructs, key variables, and underlying relationships across a set of primary qualitative case studies to arrive at a refined, an extended or even new theory. In the following, I discuss the potential prospects as well as the challenges of the meta-synthesis and provide evidence that establishes its merits for accumulating knowledge.

First, a meta-synthesis of qualitative case studies is proposed to have major potential in synthesizing qualitative evidence on a particular topic to build theory. As opposed to reviewing an existing intellectual territory to formulate new research questions or future research directions (Tranfield et al., 2003), the aim of a meta-synthesis is to build theory, thereby moving from substantive theories that are grounded in particular research contexts to a more generic theory with a broader application. In this article, I argue that a meta-synthesis has the potential to support research to progress by offering a window for conducting a more deductive theory testing design on the foundations that the meta-synthesis provided. For example, in the field of dynamic capabilities, there are a series of qualitative studies offering a fragmented, isolated picture of a variety of different aspects around managerial cognitive processing. The design of a meta-synthesis allows researchers to accumulate rich, primary evidence and to generate theory that subsequent studies can build on. Accordingly, a meta-synthesis aids in developing inductive theories that can form bridges from rich qualitative evidence to more deductive research, thereby moving to higher levels of abstraction (Eisenhardt & Graebner, 2007; Shah & Corley, 2006).

Second, building theory out of published case studies holds great potential especially if a reliable synthesis process is augmented through the application of the rigorous procedures described here. Throughout the meta-synthesis process, the researchers face the challenge of evaluating various available options to make informed methodological choices that are best suited for the synthesis purpose. However, I advocate that it is not standardization or uniformity that is desirable; rather it is the transparent, systematic, and explicit reporting of these choices that ensures reliability in this type of research synthesis. This codification allows the readers to retrace the certain paths of the meta-synthesis process as well as to critically evaluate the process and its associated product. For example, by providing a meta-synthesis protocol, transparently reporting the literature search and the inclusion/exclusion criteria as well as indicating the procedures for coding and analysis, not only the validity of the results, but also the reliability of the meta-synthesis study itself can be ensured; an aspect that is generally considered as one of the key advantages of research synthesis over literature reviews (Aguinis, Pierce, et al., 2011; Aytug et al., 2012; Dalton & Dalton, 2008).

Third, the greatest challenge that a qualitative synthesis faces is viewed in the heterogeneity inherent in the primary studies' underlying paradigmatic perspectives, methods, and quality (Noblit & Hare, 1988; Rousseau et al., 2008). The meta-synthesis design provided here adopts a more narrow approach in that it is restricted to studies following a case study approach as opposed to including qualitative studies of any type. Although the inclusion of a broad range of studies may contribute to the interpretation of a phenomenon (Sandelowski & Barroso, 2007), I propose that embracing papers with the same method is beneficial as methodological underpinnings are respected and meaning can be preserved while new meanings could also emerge. However, heterogeneity always pertains to variety in the studies' context. Consequently, a major challenge in meta-synthesis stems from empirical evidence being framed within the contextual settings in which the primary data were

conducted, analyzed, and interpreted. Acknowledging the contextual conditions is of central importance as these conditions provide the potential to account for larger moderating effects (Cortina, 2003). To address contextual considerations, the meta-synthesist needs to engage in the preservation of meaning from the original texts as far as possible. This requirement of contextual sensitivity is one that the meta-synthesist has to carefully reflect on in each decision point that he/she faces during the synthesis process. To ensure sensitivity toward the contextual considerations of any empirical material, ideally, a meta-synthesis should only be conducted by a team of trained researchers. Especially the contribution of experts in qualitative research who are also trained in conducting a meta-synthesis would be beneficial for ensuring a rigorous synthesis process.

Finally, the view taken here is that the meta-synthesis is most beneficial in intermediate or mature fields of research that are characterized by unique phenomena and a lack of adequate quantitative measures (Edmondson & McManus, 2007). More specifically, a conventional literature review or a systematic review can be seen as especially appropriate to conceptually assess and map the state of the art of a nascent field. Within a field that is progressing, more empirical research is evolving and a meta-synthesis can be helpful in converging this growing body of knowledge into new insight. For example, more intermediate fields such as the dynamic capabilities approach are particularly promising for a meta-synthesis where a continuously increasing body of empirical studies explores new constructs and/or provisional theoretical relationships. Indeed, a meta-synthesis cannot be performed without data. However, I suggest that it is not only the number of studies conducted that justifies a meta-synthesis; rather, I follow Cooper's (2010) notion that it is the fresh insights a synthesis can bring to a field that legitimates its course of action.

## Conclusion

In organizational and management research, there is a need to assemble a field's full weight of scientific knowledge into a full understanding of a phenomenon (Hunter et al., 1982; Rousseau et al., 2008). In this article, I develop the meta-synthesis design as a rigorous and systematic way of synthesizing qualitative case studies to build theory. Rather than meta-analyzing quantitative findings in an additive logic, the meta-synthesis seeks to move a body of knowledge forward by interpreting primary qualitative evidence across different contexts to come to a higher replicability of theory.

Nevertheless, this meta-synthesis design has raised a number of issues that require further discussion and consideration. First, the research design of a meta-synthesis proposed in this article has arrived at stages of analysis that seek to satisfy the criteria of validity and reliability. Thus, I advocate that stating and applying criteria for rigorous work is to be viewed as a critical part of conducting a meta-synthesis. In particular, it is key to the validity and reliability of a synthesis to acknowledge the potential bias that may stem from an incomplete literature research or from data being incorrectly extracted from primary studies (Aytug et al., 2012; Cooper, 2010). Future researchers should engage in minimizing bias and improving rigor at every stage of the synthesis, thereby ensuring that the conduct of a meta-synthesis meets the same standards as the primary studies under synthesis. Second, in this article, a set of techniques and procedures is provided that are beneficial for analyzing primary qualitative evidence at a within-case level or an across-case level. More generally, I propose that the procedures of coding and analysis developed for primary qualitative research seem to be applicable to the meta-synthesis as they allow for iterative comparisons across qualitative data sources (Miles & Huberman, 1994). However, future research should identify and explore further qualitative as well as quantitative methods that may bear potential in these analysis issues and provide additional ways of synthesizing qualitative evidence. Taken together, in this article I advocate that advancing management theory does not only evolve from scholars engaging in field research—studying real people, real problems, and real organizations (Edmondson & McManus, 2007)—but also by researchers entangling in the accumulation of knowledge already existing in a field.

**Appendix A.** Initial Articles Retrieved From the Literature Search.

Articles Identified in the Basic Literature Search Strategy as Well as in the Complementary Search		Articles Assessed and Categorized According to Their Title/Abstract/Keywords		Articles Assessed and Categorized According to Their Full-Text Version		Case Studies Included/Excluded in the Meta-Synthesis		
No.	Author/Year	Journal	False Positives	Conceptual Article	Review Article	Quantitative Study	Qualitative Study	Case Studies Included/Excluded in the Meta-Synthesis
<b>Obtained from main search</b>								
1	Vogel, 2012	<i>Organization Studies</i> , 33(8), 1015-1043	Irrelevant citation					
2	Kemmerer, Walter, Kellermanns, and Narayanan, 2012	<i>Journal of Business Research</i> , 65(8), 1102-1108				Quantitative		
3	Nag and Gioia, 2012	<i>Academy of Management Journal</i> , 55(2), 421-457					Grounded theorizing	—
4	Gavetti, Greve, Levinthal, and Ocasio, 2012	<i>Academy of Management Annals</i> , 6, 1-40		Conceptual				
5	Newey, Verreymne, and Griffiths, 2012	<i>Journal of Management and Organization</i> , 18(1), 123-140					Process research	—
6	Gavetti, 2012	<i>Organization Science</i> , 23(1), 267-285		Conceptual				
7	Bingham and Eisenhardt, 2011	<i>Strategic Management Journal</i> , 32(13), 1437-1464					Qualitative case study	Excluded (understanding of dynamic capabilities)
8	Hodgkinson and Healey, 2011	<i>Strategic Management Journal</i> , 32(13), 1500-1516		Conceptual				
9	Boerjesson and Elmquist, 2011	<i>Creativity and Innovation Management</i> , 20(3), 171-184					Qualitative case study	Excluded (no focus on dynamic capability development)
10	Festing and Eideims, 2011	<i>Human Resource Management Review</i> , 21(3), 162-173		Conceptual				

(continued)



## Appendix A. (continued)

Articles Identified in the Basic Literature Search Strategy as Well as in the Complementary Search		Articles Assessed and Categorized According to Their Title/Abstract/Keywords			Articles Assessed and Categorized According to Their Full-Text Version			
No.	Author/Year	Journal	False Positives	Conceptual Article	Review Article	Quantitative Study	Qualitative Study	Case Studies Included/Excluded in the Meta-Synthesis
11	Buy, Boone, and Matthyssens, 2011	<i>Strategic Organization</i> , 9(3), 240-246		Conceptual				
12	Siggelkow, 2011	<i>Journal of Management Studies</i> , 48(5), 1126-1140				Quantitative		
13	Pandza, 2011	<i>Journal of Management Studies</i> , 48(5), 1015-1043					Qualitative case study	Included in meta-synthesis
14	Mitchell, Shepherd, and Sharfman, 2011	<i>Strategic Management Journal</i> , 32(7), 683-704				Quantitative		
15	Gary and Wood, 2011	<i>Strategic Management Journal</i> , 32(6), 569-594				Quantitative		
16	Kaplan, 2011	<i>Journal of Management Studies</i> , 48(3), 665-695			Review			
17	Arndt, 2011	<i>South African Journal of Business Management</i> , 42(1), 1-8				Quantitative		
18	Van Beuningen, de Ruyter, and Wetzels, 2011	<i>Journal of Service Research</i> , 14(1), 108-125				Quantitative		
19	Yang, 2011	<i>International Journal of Technology Management</i> , 56(1), 40-52				Quantitative		
20	Autio, George, and Alexy, 2011	<i>Entrepreneurship Theory and Practice</i> , 35(1), 11-37					Qualitative case study	Excluded (no focus on dynamic capability development)
21	Valorinta, Schildt, and Lamberg, 2011	<i>Industry and Innovation</i> , 18(8), 765-790					Historical analysis	—

(continued)

**Appendix A. (continued)**

Articles Identified in the Basic Literature Search Strategy as Well as in the Complementary Search		Articles Assessed and Categorized According to Their Title/Abstract/Keywords			Articles Assessed and Categorized According to Their Full-Text Version			Case Studies
No.	Author/Year	Journal	False Positives	Conceptual Article	Review Article	Quantitative Study	Qualitative Study	Included/Excluded in the Meta-Synthesis
22	Gaertner, 2011	<i>Management Decision</i> , 49(2), 253-269		Conceptual				
23	Bonet, Peris-Ortiz, and Pechuan, 2011	<i>Management Decision</i> , 49(2), 270-283		Conceptual				
24	Aspara, Lambert, Laukia, and Tikkanen, 2011	<i>Management Decision</i> , 49(3-4), 622-647					Qualitative case study	Excluded (theoretical framing)
25	Danneels, 2011	<i>Strategic Management Journal</i> , 32(1), 1-31					Qualitative case study	Included in meta-synthesis
26	Eisenhardt, Furr, and Bingham, 2011	<i>Organization Science</i> , 21(6), 1263-1273		Conceptual				
27	Kunc, 2010	<i>Strategic Management Journal</i> , 31(11), 1164-1182				Quantitative		
28	Zbaracki and Bergen, 2010	<i>Organization Science</i> , 21(5), 955-972					Grounded theorizing	—
29	Dangelico, Garavelli, and Petruzelli, 2010	<i>Technovation</i> , 30(2), 142-153				Quantitative		
30	Byington and Felps, 2010	<i>Research in Organizational Behavior</i> , 30, 175-202	Irrelevant citation					
31	Yang, Lin, and Li, 2010	<i>Industry and Innovation</i> , 7(3), 285-302	Irrelevant citation					
32	Desarbo, Grewal, and Wang, 2010	<i>Strategic Management Journal</i> , 30(13), 1420-1439				Quantitative		
33	Laamanen and Wallin, 2009	<i>Journal of Management Studies</i> , 46(6), 950-981					Qualitative case study	Included in meta-synthesis

(continued)

**Appendix A. (continued)**

Articles Identified in the Basic Literature Search Strategy as Well as in the Complementary Search		Articles Assessed and Categorized According to Their Title/Abstract/Keywords			Articles Assessed and Categorized According to Their Full-Text Version		Case Studies	
No.	Author/Year	Journal	False Positives	Conceptual Article	Review Article	Quantitative Study	Qualitative Study	Included/Excluded in the Meta-Synthesis
34	Taylor and Helfat, 2009	<i>Organization Science</i> , 20(4), 718-739					Qualitative case study	Excluded (illustrative case examples)
35	Narayanan, Colwell, and Douglas, 2009	<i>British Journal of Management</i> , 20, S25-S40					Qualitative case study	Included in meta-synthesis
36	Newey and Zara, 2009	<i>British Journal of Management</i> , 20, S81-S100					Process research study	—
37	Pandza and Thorpe, 2009	<i>British Journal of Management</i> , 20, S118-S131		Conceptual				
38	Agarwal and Helfat, 2009	<i>Organization Science</i> , 20(2), 281-293					Qualitative case study	Excluded (illustrative case examples)
39	FloriceI and Ibanescu, 2008	<i>R&amp;D Management</i> , 38(5), 452-467				Quantitative		
40	Marshall, 2008	<i>Management Learning</i> , 39(4), 413-435	Irrelevant citation					
41	Consoli, 2008	<i>Technology Analysis &amp; Strategic Management</i> , 20(4), 409-425				Quantitative		
42	Mahnke, Venzin, and Zahra, 2007	<i>Journal of Management Studies</i> , 44(7), 1278-1298		Conceptual				
43	Bingham, Eisenhardt, and Furr, 2007	<i>Strategic Entrepreneurship Journal</i> , 1(1-2), 27-47				Quantitative		

(continued)

**Appendix A. (continued)**

Articles Identified in the Basic Literature Search Strategy as Well as in the Complementary Search		Articles Assessed and Categorized According to Their Title/Abstract/Keywords			Articles Assessed and Categorized According to Their Full-Text Version		Case Studies	
No.	Author/Year	Journal	False Positives	Conceptual Article	Review Article	Quantitative Study	Qualitative Study	Included/Excluded in the Meta-Synthesis
44	Reuber and Fischer, 2007	<i>Journal of Business Venturing</i> , 22(3), 363-387			Literature review			
45	Lanzara and Patriotta, 2007	<i>Organization Studies</i> , 28(5), 635-660					Qualitative case study	Excluded (notion of dynamic capabilities used)
46	Lamberg and Tikkanen, 2006	<i>Industrial and Corporate Change</i> , 15(5), 811-846					Historical analysis	—
47	Khoumbati and Themistocleous, 2006	<i>Journal of Management Information Systems</i> , 22(4), 69-108	Irrelevant citation					
48	Jacobides, 2006	<i>Industrial and Corporate Change</i> , 15(1), 151-171		Conceptual				
49	Gilbert, 2006	<i>Organization Science</i> , 17(1), 150-167					Qualitative case study	Excluded (no initial framing in the dynamic capability approach)
50	Lavie, 2006	<i>Academy of Management Review</i> , 31(1), 153-174		Conceptual				
51	Gavetti, 2005	<i>Organization Science</i> , 16(6), 599-617		Conceptual				
52	Bhattacharya and Gibson, 2005	<i>Journal of Management</i> , 31(4), 622-640				Quantitative		
53	Khan and Quaddus, 2004	<i>Group Decision and Negotiation</i> , 13(5), 463-480				Quantitative		

(continued)

## Appendix A. (continued)

Articles Identified in the Basic Literature Search Strategy as Well as in the Complementary Search		Articles Assessed and Categorized According to Their Title/Abstract/Keywords			Articles Assessed and Categorized According to Their Full-Text Version		Case Studies	
No.	Author/Year	Journal	False Positives	Conceptual Article	Review Article	Quantitative Study	Qualitative Study	Included/Excluded in the Meta-Synthesis
54	Van Riel and Lievens, 2004	<i>International Journal of Service Industry Management</i> , 15(1), 72-101					Qualitative case study	Excluded (theoretical framing)
55	Adner and Helfat, 2003	<i>Strategic Management Journal</i> , 24(10), 1011-1025				Quantitative		
56	Durand, 2003	<i>Strategic Management Journal</i> , 24(9), 821-838				Quantitative		
57	Cohendet and Llerena, 2003	<i>Industrial and Corporate Change</i> , 12(2), 271-297		Conceptual				
58	Celuch, Kasouf, and Peruvemba, 2002	<i>Industrial Marketing Management</i> , 31(6), 545-554				Quantitative		
59	Tyler and Gnyawali, 2002	<i>Journal of Product Innovation Management</i> , 19(4), 259-276				Quantitative		
60	Kogut and Kulatilaka, 2001	<i>Organization Science</i> , 12(6), 744-758				Quantitative		
61	Tripsas and Gavetti, 2000	<i>Strategic Management Journal</i> , 21(10-11), 1147-1161					Qualitative case study	Included in meta-synthesis
62	Lam, 2000	<i>Organization Studies</i> , 21(3), 487-513		Conceptual				
63	Bloodgood and Chae, 2010	<i>Management Decision</i> , 48(1-2), 85-104	Irrelevant citation					

(continued)

**Appendix A. (continued)**

Articles Identified in the Basic Literature Search Strategy as Well as in the Complementary Search		Articles Assessed and Categorized According to Their Title/Abstract/Keywords			Articles Assessed and Categorized According to Their Full-Text Version			
No.	Author/Year	Journal	False Positives	Conceptual Article	Review Article	Quantitative Study	Qualitative Study	Case Studies Included/Excluded in the Meta-Synthesis
64	Ginsberg and Morecroft, 1997	<i>Management Learning</i> , 28(4), 455-473	Irrelevant citation					
65	Keil, Autio, and George, 2008	<i>Journal of Management Studies</i> , 45(8), 1475-1505					Qualitative case study	Included in meta-synthesis
66	McDermott and Coates, 2007	<i>IEEE Transactions of Engineering Management</i> , 54(2), 340-350					Qualitative case study	Excluded (no focus on dynamic capability development)
67	Winter, 2011	<i>Journal of Institutional Economics</i> , 7(2), 257-277		Conceptual				
68	De Grauwe, 2010	<i>Public Choice</i> , 144(3-4), 413-443				Quantitative		
69	Allen, Strathern, and Baldwin, 2007	<i>Journal of Evolutionary Economics</i>	Irrelevant citation					
70	Bai, White, and Sundaram, 2011	Proceedings	Irrelevant citation					
71	Rinaldi, 2011	Proceedings	Irrelevant citation					
72	Arechavala and McCarthy, 2010	Proceedings	Irrelevant citation					
73	Zhang, 2010	Proceedings	Irrelevant citation					
74	Zhang, 2009	Proceedings				Quantitative		
75	Blomqvist, 2009	Proceedings	Irrelevant citation					

(continued)

**Appendix A. (continued)**

Articles Identified in the Basic Literature Search Strategy as Well as in the Complementary Search			Articles Assessed and Categorized According to Their Title/Abstract/Keywords			Articles Assessed and Categorized According to Their Full-Text Version		
No.	Author/Year	Journal	False Positives	Conceptual Article	Review Article	Quantitative Study	Qualitative Study	Case Studies Included/Excluded in the Meta-Synthesis
76	Sole, Carlucci, and Schiuma, 2009	Proceedings	Irrelevant citation					
77	Wenliang and Junzheng, 2007	Proceedings				Quantitative		
78	Dan-li, 2007	Proceedings	Irrelevant citation					
79	Demartini, 2007	Proceedings					Qualitative case study	Excluded (understanding of dynamic capabilities)
80	Dixit, Sharma, and Karna, 2007	Proceedings					Qualitative case study	Excluded (understanding of dynamic capabilities)
81	Chen and Liu, 2005	Proceedings	Irrelevant citation					
<b>Obtained from complementary search</b>								
82	Salvato, 2003	<i>Journal of Management Studies</i> , 40(1), 83-108					Qualitative case study	Excluded (no focus on dynamic capabilities approach)
83	Salvato, 2009	<i>Organization Science</i> , 20, 384-409					Qualitative case study	Included in meta-synthesis
84	Holbrook et al., 2000	<i>Strategic Management Journal</i> , 21(10-11), 1017-1041					Qualitative case study	Excluded (no focus on dynamic capability development)
85	Pablo et al., 2007	<i>Journal of Management Studies</i> , 44, 87-708					Qualitative case study	Excluded (no managerial cognition in research question)

(continued)

**Appendix A. (continued)**

Articles Identified in the Basic Literature Search Strategy as Well as in the Complementary Search		Articles Assessed and Categorized According to Their Title/Abstract/Keywords				Articles Assessed and Categorized According to Their Full-Text Version			Case Studies
No.	Author/Year	Journal	False Positives	Conceptual Article	Review Article	Quantitative Study	Qualitative Study	Included/Excluded in the Meta-Synthesis	
86	Rosenbloom, 2000	<i>Strategic Management Journal</i> , 21(10-11), 1083-1103					Historical analysis	—	
87	Martin, 2011	<i>Organization Science</i> , 22(1), 118-140	16	16	2	23	30	Excluded (no managerial cognition in research question)	
								23	



## Appendix B

### List of Studies Included in the Meta-Synthesis

- Danneels, E. (2010). Trying to become a different type of company: Dynamic capability at Smith Corona. *Strategic Management Journal*, 32, 1-31.
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