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Client-consultant interaction practices: Sources of ingenuity, value creation and strategizing

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Client-consultant interaction practices

Sources of ingenuity, value creation
and strategizing

by

Sebastiano Lombardo

A dissertation submitted to BI Norwegian Business School
for the degree of PhD

PhD specialisation: Strategy

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Sebastiano Lombardo

Client-consultant interaction practices: Sources of ingenuity, value creation
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To
Ole Daaland
and
T. Thorgeir Harsem

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Abstract

Service providers increasingly choose to interact with their clients. Previous studies show that client's resources and activities can influence the service provider's ability to create value, to be creative, and to develop competitive strategies. Yet several gaps can be identified in the literature regarding how these abilities are impacted by client-consultant interaction (c-c-i) practices. The purpose of this doctoral thesis is to explain the service providers' varying ability to offer highly valuable solutions to their clients' problems, in terms of the practices through which consultants interact with their clients. The main research questions are;

How do client-consultant interaction practices influence a firm's ability to offer unique value propositions and deliver ingenious solutions, and how do these practices influence the formation of the firm's strategy?

These questions are answered through four papers. Each paper answers a sub-question. Paper 1 focuses on the impact of c-c-i practices on the service providers' ingenuity capabilities. The paper asks how project teams shatter constraints in ill-structured problem-solving situations, and what implications this finding has for the understanding of creative action in organizations. This paper sheds light on the c-c-i practices through which project teams shatter their constraints and create ingenious solutions.

Paper 2 focuses on the creative aspects of c-c-i practices and presents the experiences of service providers who have been successful in capitalizing on the creative resources provided by their clients.

Paper 3 is an inquiry into the relationship between c-c-i practices and the service providers' ability to offer unique value propositions. The paper provides a model to define and assess value created through c-c-i practices. The findings of this paper show that value creation is maximized through c-c-i practices that provide access to various forms of capital and practice that enable capital exploitation. Unique value offerings can be developed from knowing what c-c-i practices to enact in different circumstances.

Finally, paper 4 focuses on the implications of c-c-i practices for the emergence of new strategies. The findings show that mundane business operations can be the locus of strategizing, and that clients can play a role in emergent strategy formation. Theoretical resources for this research are drawn from literature on practice theory, strategy, organizational creativity, and value creation.

An explorative research design is used and qualitative data are gathered from 30 cases through extensive field work. Both in-depth and comparative case analyses are performed.

The overall theoretical contribution is threefold. First, the potential role of clients and mundane operations in the dynamic formation of strategy is unveiled. Second, insights are offered into how the practices through which clients and consultants interact can be *simultaneously* an arena for creative problem solving, a source of value for the client, and the locus of strategizing for the firm. Finally, revealing some micro-foundations of client-consultant interaction, the study contributes to the broader literature on the processes of knowledge and value creation in professional service firms.

Methodological contributions come from the definition and operationalization of the concept of practice, with the consequent data collections and analysis strategies; from the use of counterfactual analyses; and from the design and implementation of participant objectivation. This study has also practical implications for the design and facilitation of creative sessions in problem solving workshops; for the assessment of the value created through client-consultant interaction practices; and for managers who have to cope with the emergence of new strategies.

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Taking a PhD is at once a very solitary endeavor and a surprisingly social practice. It requires a very singular motivation to engage with your own ideas, while allowing others to influence your attitudes and challenge you beliefs.

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At Norconsult there are many people who have provided me with practical help and personal support during this PhD work. All of them deserve my most sincere gratitude. I would like to mention in particular the colleagues who have volunteered to engage in long personal dialogues about their own professional practices and who have spent much time sharing their insights with me. Besides them, my particular gratitude goes to Janicke P. Garmann, Kristin P. Grenan, Thorgeir Harsem, John Nyheim, Sigurd Rugsland, and Leif Øye, who have provided decisive support in critical areas of my work, of my research, and of my personal development.

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¹ The gratitude to my parents is expressed in our own language, Italian.

Preface

This study was conceived thanks to interactions with one of my clients from a large manufacturing firm. He asked me *how he and his coworkers could become more creative* and about *how to measure the value* my consultant services generated for him. I did not have good enough answers. Indeed none of the consultants, experts, and gurus, he had met in the past, had satisfactory answers either. Yet, most of them had given him some answer. *These* answers told him what to do. He found these prescriptions theoretically well founded, but somehow detached from his practice, and very hard to implement. Upon not receiving good enough answers, in stead of changing consultant, this client kept interacting with me, over five years, asking the same questions, in genuine search of good enough answers. Eventually I started to think that the answer was probably not one with the characteristics of a universally acknowledged truth, to be understood and implemented. Nor was it an answer that could be found just by paying the best experts enough money.

The questions about creativity and value creations were probably to be answered in the specificity of the interaction that was taking place between us, in the ‘here and now’ that was different at any time. The sources of knowledge and experience needed to provide that answer were not only coming from my side, the consultant side. They were also coming from the client’s side. If we were creating ingenious solutions, we were doing that together, at that specific time, in that specific place, for some reason that was not simply a matter of using the best expert or the best tools. Value was being created through what we did, how we did it, together, *in practice*. There was some logic behind that, but we did not manage to grasp it. No matter how intensely and honestly we tried, we did not achieve a satisfactory conceptual explication. The ingenious solution was there, the value created could be perceived, but we could not satisfactorily conceptualize what we had done in practice. This was a matter of strategic importance for the client, who was interested in repeatedly create value through ingenious solutions. It was important for me too, because I want to offer ingenious solutions and unique value propositions. We had to open the black box of our interaction and dig deeper into our practices.

This is the very mundane, true and simple story behind this study. This is a story of practitioners, clients and consultants, who reflect upon their own practices. These are practitioners who want to understand how their interactions influence value creation, problem solving and strategizing.

This is the reason why the theoretical ambition of this study is to further the understanding of the logic and the value of client-consultant interaction practices. The methodological ambition is to develop the study from within an ontological and epistemological stance that puts practice at the core. The empirical ambition is to provide the knowledge basis to develop tools that practitioners can use to design and manage client–consultant interactions for higher value creation, better problem solving, and strategizing.

1. Introduction

This study is dedicated to an exploration of client-consultant interaction practices (c-c-i practices). As specialization, knowledge intensiveness, and technological complexity grow in many business sectors (Jacob & Ulaga, 2008; Möller, 2006; Sawhney, 2006), service providers increasingly choose to *interact with their clients*. The providers' rationale is to be able to access the stock of clients' resources (Nordin & Kowalkowski, 2010; Tuli, Kohli, & Bharadwaj, 2007) and to use it in the production of ingenious and valuable solutions (Lapierre, 1997; Newell, Shaw, & Simon, 1962). The phenomenon of interaction between consultant service providers and their clients is gaining momentum in as different research fields as services marketing (Grönroos, 2000; Lindgreen & Wynstra, 2005), organizational buying and procurement (Nicosia & Wind, 1977; Verville & Halington, 2003), value creation (Ramirez, 1999; Vargo & Lusch, 2008) and strategic management (e.g. Bendapudi & Leone, 2003; Kristensson, Matthing, & Johansson, 2008; Løwendahl & Revang, 2004; Prahalad & Ramaswamy, 2004).

These streams of research provide insights into different aspects of client-consultant interactions. The creative aspect (related to the ever present need for ingenious solutions to client's problems (Woodman, Sawyer, & Griffin, 1993)), the value creation aspect (related to the consultant's need to offer unique value propositions (Grönroos, 2008)), and the strategic aspect (related to the service provider's inexorable need for competitive advantage (Woodruff, 1997)), are all of particular interest for this study.

The purpose of this doctoral thesis is to explain the service providers' varying ability to offer highly valuable solutions to their clients' problems, in terms of the practices through which consultants interact with their clients. The main research questions are:

How do client-consultant interaction practices influence a firm's ability to offer unique value propositions and deliver ingenious solutions, and how do these practices influence the formation of the firm's strategy?

The theoretical rationale behind the choice of these specific questions is based on the precepts of "engaged scholarship" (Van de Ven, 2007) and is explained in the following sections. I also present the theoretical positioning, and of the structure of this thesis. I introduce my argument by providing a view of the phenomenon of client-consultant interaction through the following vignette.

1.1 A peek into client-consultant interaction practices

The National Public Transportation Authority (NPR, or "the client") of a Western European country, has hired Civeng, a civil engineering consulting firm, to design a 20 km highway segment. The problem is complex; there is no predefined solution procedure, no predefined solution design; and the goal and the scope of the project can be subject to unplanned changes

after the project start. I will call this kind of problem setting ‘ill-structured’ (Newell & Simon, 1972).

The highway project has a total budget of 125 MEUR. The final highway design will impact the local environment, the local population, and the industrial development of the region. This assignment provides Civeng’s engineers with challenges that go well beyond their field of specialization (highway design and project administration). In fact, the constraints that apply to problem solving in this project are not exclusively technical. Besides delivering a modern and efficient transportation infrastructure, the final solution must preserve the historical and environmental values of the area, and it must respect the cultural values of the local residents (e.g. democratic participation). Part of this know-how can quickly be provided by the client’s engineers and scientists who have worked with front end engineering and design in that area during the past three years. For this reason the project is staffed by teams of engineers and scientists from both NPRA (client) and Civeng (consultant).

Failure to face the social, environmental and cultural challenges can cause a conflict with the local community, higher development costs, unwanted delays for the project, and bad references for the consultants. But success in managing the constraints in such an ill-structured problem (i.e., delivering a top modern, safe, efficient highway structure, preserving the local environment and historical and cultural values) may boost Civeng’s reputation and provide the firm with a stronger position in its markets (competitive advantage). Civeng’s consultants understand that to design the new highway, they have to capitalize on the knowledge and experiences that their clients, third parties (such as local politicians), and NGOs, can provide. For this reason, Civeng engages in interactions with all these actors. Consultants and clients come together in engineering workshops to define their ambitions, acknowledge their limitations, and to design ingenious solutions. Consultants and clients engage in interactions throughout the project to create value for themselves and for society. In what follows, service providers are called ‘consultants’, and service buyers are called ‘clients’.

This vignette is but one example. Besides the civil infrastructure sector, similar cases can be found in other business sectors such as architectural services, urban planning, software development, and bespoke R&D services² (Gummesson, 1978; Løwendahl, 2005; Nordin & Kowalkowski, 2010; Sawhney, 2006; Tuli et al., 2007).

This thesis approaches a general phenomenon that can be found in any of these sectors; that of service providers facing ill-structured problems who choose to interact with their clients to produce ingenious solutions, to create value for their clients, and to secure some degree of competitive advantage in their markets (e.g. Lapierre, 1997; Ordanini & Pasini, 2008).

² In industrial sectors such as the pharmaceutical, materials technology, informatics, and geophysical explorations within oil and gas.

1.2 The structure of this thesis

First, I explain the choice of the main research questions by positioning this study in the existing literature. The theoretical approach is presented, along with an explanation of how it has influenced the interpretation of the research questions and their development in the four papers included in the thesis. A synopsis of the four papers is also included in order to provide an overview of the research questions addressed, and the results achieved, in each paper.

Next is the research methodology chapter. In this study, a series of methodological choices are made in order to put *practice* at the center of data collection and analysis. This chapter presents the rationale and the details behind the choice and operationalization of a practice-oriented research design, along with its limitations.

The four papers are then proposed in full text, for the reader to appreciate the details of the theoretical and empirical work.

A concluding chapter presents the overall contributions of this study, its implications for practitioners, and an invitation to carry out future research.

2. Client-consultant interaction in various research traditions

My research questions matured through an iterative process of searching for insights from various bodies of literature, and through the matching of these insights with my empirical work. This section presents the theoretical rationale behind the choice of the main research questions, and provides a short overview of the theoretical insights used to approach them through the four papers.

The vignette presented in the introductory chapter provides anecdotal evidence of the co-existence of creative problem solving, value creation and strategy in the context of consultant service provision. In addition to that, theoretical and empirical evidence can be found in the literature. From earlier research we know that, in the business sectors mentioned in the introduction, despite information asymmetries (Möller & Törrönen, 2003), the knowledge level of the clients is high and often comparable to that of the consultants they hire (Skjølsvik, Løwendahl, Kvalshaugen, & Fosstenlokken, 2007). Creative work is often expected, and client-consultant interactions are crucial for the generation of ingenious solutions (Onarheim, 2012). From previous studies we also know that client-consultant interactions can affect the consultant's ability to create value (e.g. Echeverri & Skålén, 2011; Grönroos, 2008) and the development of competitive strategies (Løwendahl & Revang, 1998, 2004; Woodruff, 1997).

These insights suggest that several lines of research have approached the phenomenon of client-consultant interactions, its multiple facets and its various implications, from various theoretical stances. The diversity of the literature provides a broad range of theoretical insights that may be used to explain different aspects of client-consultant interaction practices and their implications for consultant service providers. This study attempts to appreciate the

breadth and diversity of these points of view. The main research questions are derived from an effort to unveil knowledge gaps in the literature and to address the gaps by pulling together insights from different theoretical traditions. This thesis reviews works in the fields of organizational ingenuity, value creation, relationship marketing, and strategy.

Organizational ingenuity

The vignette presented above, shows that consultants and clients have to interact in their search for ingenious solutions. Several studies have addressed the implications of social interactions for organizational ingenuity (e.g. Perry-Smith & Shalley, 2003; Stacey & Eckert, 2010; Woodman et al., 1993). The vignette also shows that practitioners who face ill-structured problems, have to cope with many kinds of constraints (Sternberg & Kaufman, 2010). From the literature on organizational ingenuity we know that the phenomenon of constraint-handling (e.g. Onarheim & Wiltschnig, 2010; Stokes, 2005) plays a central role in understanding the achievement of ingenious solutions. Previous research has produced evidence of numerous constraint-handling practices (Gero, 1990; Onarheim, 2012; Onarheim & Biskjaer, (in press); Stokes, 2007) which practitioners draw upon when defining and exploring their own problem spaces (Newell & Simon, 1972; e.g. Onarheim & Wiltschnig, 2010; Stokes, 2007).

The organizational ingenuity literature provides useful conceptual tools to approach several aspects of problem solving. Yet the concept of creativity is not univocally defined, and its use is limited to the generative part of the problem space. This literature provides opportunities to extend the study of creative action to the whole problem space, including the phases of problem definition and solution assessment. Moreover, the question of how constraints are handled is often limited to a focus on how to optimize the creative performance of individual practitioners (e.g. Biskjaer, Onarheim, & Wiltschnig, 2011; Koberg & Bagnall, 2003; Michalko, 2006) rather than on the performance of project teams (Joyce, 2009; Onarheim, 2012). The implications of clients-consultant interactions for the achievement of ingenious solutions remain unexplained. These gaps provide an opportunity to study the practices through which clients and consultants interact to handle constraints and deliver ingenious solutions (Joyce 2009).

Value creation, relationship marketing

Other studies have addressed the implications of client-consultant interactions for value creation (see Bentapudi & Leone 2003). This body of research has increasingly stressed that value creation requires that consultants and clients share critical information and accomplish effective communication (Ballantyne & Varey, 2006; Prahalad & Ramaswamy, 2000). The consultant's ability to interact with the client is a determinant of the client's ability to use the service provided and to create value-in-use (Grönroos, 2008; Payne et al., 2008). Several studies reveal that, for consultants, client interaction is a privileged form of accessing and

nurturing interpersonal social relations (Payne & Holt, 2001); a platform for learning (Fosstenlokken, Løwendahl, & Revang, 2003); and a fundamental source of value *co*-creation (Aarikka-Stenroos & Jaakkola, 2012; Lindgreen & Wynstra, 2005; Vargo & Lusch, 2004; Walter, Ritter, & Gemünden, 2001). I use the term *co*-creation to indicate the practices through which consultants interact with their clients when they get involved with their client's value-generating process (Grönroos, 2008, 2011).

The concept of value is at the core of this body of research (Ramirez 1999). The literature shows that value is a multifaceted construct that depends upon the client's subjective perceptions and experiences (Eggert & Ulaga, 2002) and is affected by the relationship and interactions between the consultants and the clients (Lapierre, 2000; Ravald & Grönroos, 1996). Literature on value creation provides several conceptual models that can be used to display this relation (e.g. Aarikka-Stenroos & Jaakkola, 2012; Ordanini & Pasini, 2008; Payne, Storbacka, & Frow, 2008). However, detailed empirical investigations of these client-consultant interaction practices, seen from the value creation perspective, are very rare. We still know little about how these practices influence value creation (Aarikka-Stenroos & Jaakkola, 2011, p.15, Lindgreen & Wynstra, 2005). Moreover, this literature shows that the very definition of value is in continuous evolution. In particular, the identification and determination of the multifaceted value elements of complex offerings has remained largely unexplored (Lindgreen, Antiocho, Palmer, & Tim, 2009). This knowledge gap affects the consultants' ability to demonstrate the value of their offerings, and to differentiate themselves from their competitors (Lusch & Vargo, 2006). But it provides opportunities for further research on the value of client-consultant interactions.

Strategy and strategizing

In the vignette, consultants saw the interaction with their clients and third parties as an opportunity to demonstrate the value of their offerings and services, which in turn, they hoped, would provide them with some form of competitive advantage. From this point of view client-consultant interactions can be seen as a strategic management issue. In this stream of literature we find some studies that are concerned with the implications that these interactions have for the development of new knowledge and new sources of competitive advantage (e.g. Ambrosini, Bowman, & Burton-Taylor, 2007; Fosstenlokken et al., 2003; Prahalad & Ramaswamy, 2004; Woodruff, 1997). Other studies focus more on the social practices of strategy making (Jarzabkowski, 2004). Some authors ask whether extra-organizational actors should be included in the number of the firm's strategists (Jarzabkowski, Balogun, & Seidl, 2007). Several studies have focused upon the social, interpretative, linguistic, and personal knowledge bases through which strategy is shaped by actors who lack formal roles in strategy formation (e.g. Balogun, 2003; Balogun & Johnson, 2004; Mantere, 2005; Regner, 2003; Rouleau, 2005). Some authors have for example focused on external consultants' participation and influence in strategy workshops (Hodgkinson, Whittington,

Johnson, & Schwarz, 2006), or on the role of external experts in supporting middle managers' strategic intentions (Hoon, 2007). Clients have not been included in these studies yet (Jarzabkowski and Spee, 2009).

Moreover the debate has focused much on the practices that strategists draw upon during the formal strategy processes (Johnson, Langley, Melin, & Whittington, 2007; Mintzberg, 1978; Vaara & Whittington 2012; Whittington, 2006). Therefore, the knowledge about the practices through which clients may engage in the conception and formation of new strategies (Jarzabkowski & Spee, 2009) during mundane business operations is very limited. The questions of whether and how specific client-consultant interactions practices have an impact on strategizing remain basically unanswered.

Limitations of current research

The review of the literature provides insights into various aspects of client-consultant interaction, and on knowledge gaps specific to each research stream. It also unveils two more fundamental limitations that apply across the various research streams.

First, looking at each of these literatures separately, one might consider ingenious problem solving, value creation and strategizing, as single capabilities related to independent practices. The vignette shows that these practices co-exist though. Solving a problem in collaboration with the client, creating value by producing together ingenious designs, proving that the consultant's services are competitive, are all interconnected activities. These interconnections are somehow overlooked in the existing literature. Ingenious problem solving, value creation and strategizing may be bundled to each other by means of the interactions between clients and consultants. We know little about whether and how these practice bundles interact (Jarzabkowski & Spee, 2009).

Second, empirical research that focuses on practice and the mundane issues of business is still scant. With few exceptions (Echeverri & Skålén, 2011; Oakes, Townley, & Cooper, 1998), the value creation literature pays little attention to the practical aspects of action. Similarly, the creativity and organizational ingenuity literature tends to favor the cognitive elements of the creative work, rather than how creative work is practiced. In strategy literature, the concept of practice has received much attention. But a debate is still going on about which research designs and epistemological choices would be the most appropriate and feasible (Chia, 2004; Chia & MacKay, 2007) to study strategizing practices.

The research questions

The main research questions in this study are derived from these gaps. This study addresses these gaps by putting the concrete interactions between clients and consultants at the core of the following research questions:

How do client-consultant interaction practices influence a firm's ability to offer unique value propositions, and deliver ingenious solutions, and how do these practices influence the formation of the firm's strategy?

These questions can be approached from various theoretical points of view and can be developed through ancillary research questions, as is done in the papers of this dissertation.

3. Alternative theoretical approaches

The overall research questions present the challenges of service providers. Service providers have to interact with their clients and need to capitalize on these interactions to secure some form of competitive advantage. The challenges that service providers face put strategy, and strategizing, at the center of this research.

When the emphasis of the research question is on value propositions and organizational ingenuity, the strategic focus seems to be on the *resources* that the firm needs to access, control and develop. But the same question invites the researcher to acknowledge the presence of multiple actors, including extra-organizational actors, and to appreciate their mutual relationships and interactions.

The research challenge is to approach multiple actors, multiple resources and multiple strategic issues that co-exist and co-develop.

Three possible theoretical interpretations of the research questions

At this point, several theoretical approaches are possible. When I began this study, I considered three possible approaches. Each approach represented a different way of interpreting the same overall questions. These approaches are presented in the following.

Dynamic capabilities (DC)

The overall research questions could be interpreted in terms of the development of a firm's capabilities (such as the capability to produce unique value offerings, to capitalize on clients' creative resources, and to deliver ingenious solutions). Such an interpretation would invite the researcher to study how these capabilities would dynamically change (Helfat et al., 2009; Teece, Pisano, & Shuen, 1997) as a consequence of client-consultant interactions.

The causal mechanisms could be explored in terms of understanding the microfoundations of these dynamic capabilities (i.e., the distinct skills, processes, procedures, organizational structures, decision rules, and disciplines) which undergird firm-level sensing, seizing, and reconfiguring capacities (Teece, 2007). Client-consultant interactions would have to be introduced in this kind of analysis. Such an approach could also build on resource-based

theories of the firm (Barney, 1991; Barney & Clark, 2007; Eisenhardt & Martin, 2000) in order to understand how changing capabilities develop into resources (valuable, rare, inimitable and non-substitutable) that secure competitive advantage. The preferred, single, level of analysis would then be the firm and its performance in given markets.

Organizational learning (OL)

The overall research questions could also be interpreted in terms of organizational learning. Drawing on learning theories (Argyris & Schön, 1978, 1996; Crossan, Lane, White, & Djurfeldt, 1995; Fyol & Lyles, 1985; Huber, 1991; Levitt & March, 1988; Shrivastava, 1983), the study could concentrate on the learning mechanisms and processes through which firm capabilities are developed and deployed in the organization (Zollo & Winter, 2002). The theoretical and empirical challenge would be to understand the patterns of organizational learning. Such a study would provide insights into how to manage these patterns to secure unique value propositions and ingenious solutions. The study could challenge the normative, mainstream view of organizational learning as an innately positive phenomenon, by including the creative aspects of learning. The analysis would have to consider the individual, group and organizational levels (Crossan & Berdrow, 2003) and would include learning across organizational levels (Kogut & Zander, 1993). Clients could be included in the multilevel analyses, and client-consultant interactions could be included in the study of the learning mechanisms (Fosstenlokken et al., 2003). Moreover, as DeGeus (1988) claims, organizational learning may be the only sustainable competitive advantage. Organizational learning is seen as a means to develop capabilities that are valued by clients, are difficult to imitate, and hence contribute to competitive advantage.

The research questions would thus invite the researcher to study the integration of organizational learning and strategy. Using a comprehensive framework of organizational learning (Crossan & Berdrow, 2003), such a study could contribute to the empirical research that examines the creative aspects of organizational learning and its effects on the process of strategic renewal.

Sociomaterial Practice (SP)

A third interpretation of the overall research questions could be given in terms of the sociomaterial practices (Orlikowski & Scott 2008) through which clients and consultants interact. This interpretation would invite the researcher to appreciate the details of the mundane operations during which actors interact within and across organizations. Such a study would draw upon various theories of practice (Bourdieu, 1990; Dreyfus, 1991; Giddens, 1984) and build on the recent practice-turn in the social sciences (Nicolini, 2012; Reckwitz, 2002; Schatzki, Savigny, & Knorr-Cetina, 2001). Such an interpretation would foreground the importance of the "body" and "objects" in social affairs (Orlikowski, 2007; Reckwitz, 2002). It would depict the world in relational terms as being composed by bundles of practices (Cooper, 2005). It would welcome the non-rational aspects of human action into the analysis

(Joas, 1996). The basic unit of analysis for understanding the organizational phenomena would be the *practice*. The study would invite the researcher to consider human agent capabilities as the result of taking part in one or more sociomaterial practices (Orlikowski & Scott, 2008).

The ability to create ingenious solutions, and to offer unique value propositions, could be considered as epiphenomena of the practice of client-consultant interaction. Answering the question about the implications for the firm's strategy, the study could build on the literature that focuses on the practice of strategizing (e.g. Hendry 2000, Whittington 1996, Johnson et al. 2003, Jarzabkowski 2005) and try to contribute to a more dynamic view of strategy (Regnér 2008). A key challenge would be to operationalize the concept of practice (Sandberg & Tsoukas, 2011) in such a way that it could be consistently used to approach the various aspects of the client-consultant interactions as required by the research questions.

The choice of the theoretical approach

However different they may be, these three possible approaches are not to be understood as rigidly alternative. They may have overlapping areas of interest and potential synergies (Gherardi, 2000; Nicolini, Gherardi, & Yanow, 2003; Regnér, 2008). Indeed, none of these perspectives is exempt from challenges and limitations. Yet, each imposes its own view of the world and its particular set of expected contributions to ongoing research.

The choice of the preferred interpretation of the overall research questions was guided by a set of specific needs emerged and identified in the early phases of the study, while at the same time interacting with the literature and with practitioners.

The first need was to be sensitive to the relationship between individual agency and social structures. This relationship has multiple facets. To start with, the chosen theoretical perspective had to take into account the situated activities of single actors, and the relationships, and interactions, among multiple actors (clients, consultants, and third parties). In other words, a theoretical perspective had to be chosen which could include social and cultural contexts besides the economic one. The OL or SP approaches would be preferred here, while the DC approach would tend to prioritize the economic context. Furthermore, as clients and consultants interact in and between various, and varying, organization structures, the chosen theoretical perspective would have to acknowledge the structural conditions that constrain individual agency. At the same time it would have to acknowledge the relative weights of structural conditions and individual agency, and allow for studying how change and adaptive behavior, at the individual or group level, can affect social structures endogenously. The SP approach would satisfy this need, if it adopted a definition of practice that puts individual agency in relation to its sociomaterial contexts. The DC approach, with its preference for the firm level analysis, would not give individual agency enough weight and

attention. The OL approach would allow multiple levels analysis, but would tend to weigh the cognitive aspects of behavior higher than the non-cognitive ones, with the risk of neglecting the components of behavioral change not related to learning.

The second need was to be able to account for the ‘here and now’ of the client-consultant interactions. In other words, the chosen theoretical perspective would have to provide the conceptual tools necessary to intercept and analyze the spatial and temporal characteristics of situated client-consultant interactions. Similarly, the chosen theoretical perspective should help to account for the spatial and temporal aspects of value creation and the development of organizational capabilities. All three approaches can be used to contemplate the spatial and temporal aspect of client-consultant interactions, although they would do so with significant differences. Through the DC or OL approaches spatial and temporal aspects would be merely boundary conditions to the development of firm level capabilities and learning outcomes respectively. The SP approach would allow for analysis of the time and space as integral parts of the client-consultant interaction practice.

The third need came out of my focus on value creation through ingenious solutions. This study needs to account for the creative elements of problem solving work. Consequently, the chosen theoretical perspective had to accommodate a theory of action that could account for the imaginative and non-rational aspects of human action. In this case, the SP approach is the one that allows the taking into account of the non-rational aspects of human action, while the DC and OL traditions are characterized by rational and normative accounts.

Finally, the research questions prompt the need for a theoretical perspective that can account for the participation of multiple actors in strategy making. In particular, the study should account for how multiple actors and their interactions are related to strategic outcomes. The SP approach can account for the participation of multiple actors in the formation of new strategies. The DC and OL approaches lend themselves better to other kinds of analyses.

Based on these considerations, I chose to use the sociomaterial practices approach (SP). The following chapter presents in more detail the salient characteristics of the theoretical approach chosen, along with its implications for the research design and method.

4. Approaching sociomaterial practices

The research questions stated above, have been interpreted in terms of the sociomaterial practices through which clients and consultants interact. In line with this approach, this study puts *practice* at the center of the inquiry. Practice has to be defined, and the chosen definition has to be operationalized for the purposes of this specific research.

In this study, practice is defined as “a routinized type of behavior which consists of several elements, interconnected to one another including forms of bodily activities, forms of mental activities, ‘things’ and their use, practitioners’ know-how, and even their observable states of emotion” (Reckwitz, 2002, p.249).

This chosen definition has consequences for the ontological stance of this study. Sociomaterial practices are given ontological priority with theoretical implications for the modeling of social systems, of individual behaviors, and of the relations between individuals, and between individuals and tools and materials. There are also consequences for the epistemological stance of this study, as attention is to be given to various way of approaching the knowledge about practice (Tsoukas, 2010), which in turn influence the research design (Sandberg & Tsoukas, 2011).

The following sections present the most salient elements of the theoretical approach preferred to perform this study and introduces the implications for the research design.

4.1 Entwinement as the conceptual basis of this research

The chosen definition of practice and its operationalization (see the data analysis section) are influenced by the assumptions of practice orientated social theories (Bourdieu, 1990; Giddens, 1984; Schatzki, 2002) which, in turn, are indebted to the existential philosophy of Martin Heidegger (1962). According to Heidegger, the epistemological subject-object relation is *not* our most basic way of relating to our world. We, as subjects, are not initially separated from our world, to which we subsequently become contingently connected through our intellects. We are *in* the world. We are inextricably *entwined* with it. We are not separated from, but always *already* entwined with others and things in specific sociomaterial practices (Orlikowski, 2007), such as for example problem solving, strategizing or any other management practice (Schatzki, 2005).

In other words, all the elements included in the definition of practice are to be considered as inextricably intertwined (Latour, 2004) in sociomaterial assemblages (Orlikowski, 2007). One cannot study any of the constitutive elements of practice, without simultaneously exploring the others (Barad, 2003), because they only exist in relation to each other (Slife, 2004).

Taking entwinement as the primary mode of existence means that for something to *be*, it needs to show up as *part of* a meaningful relational totality with other beings. In this study, for example, a management tool, say, a project performance appraisal template used by project managers, exists as a strategy tool by virtue of being a part of the sociomaterial

practice of appraising firm's performances. This management practice consists of many other tools, persons and activities such as discussing with the business analysts, filing the appraisal's results, following up the appraisal, applying adequate incentive schemes, and so forth.

Project manager, business analysts, performance assessment tools, *and their relations* form "a structure both of being and of meaning and apart from such a structure [they] can neither be, nor be understood" (Bartky, 1979 p. 213). These tools and persons receive their meaning as specific beings, tools and agents, from their entwinement in specific sociomaterial practices (Latour, 2004; Orlikowski, 2007; Pickering, 1993). In the practice, tools and humans form a "relational totality of significance" (Sandberg & Tsoukas, 2001, p. 343).

A relational totality of significance

In other words, "being entwined with the world makes it possible for something to be at all, to be intelligible as something and, insofar as this is the case, *entwinement constitutes the logic of practice*" (Sandberg & Tsoukas, 2011 p. 343 emphasis added). As an example, take the practice of highway planning, described in the vignette above. This practice forms a relational totality of significance consisting of elements such as I) a particular teleological structure that orients the practitioners towards specific ends (i.e., enhancing the value creation); II) certain pre-given assumptions about what matters in the value creation process, what is proper behavior and what is not, which provides agents with a particular orientation and identity; III) standards of excellence or best practices that function as points of reference for managers; IV) particular activities such as planning, interacting with clients, engineering, and so forth; V) particular engineering tools, such as textbooks, reports, software, and similar (Sandberg & Tsoukas, 2011 p. 343).

It is not possible to take away one element from the sociomaterial practice of highway planning, without taking away the whole practice (see Sandberg & Tsoukas, 2011). The indivisibility of these elements is what makes highway planning the practice that it is, and what makes it intelligible to managers and to external observers. The data analysis section explains how entwinement is operationalized in this study.

4.2 The embodied nature of practice and its temporality

The entwinement logic of practice entails that any practitioner who enacts a sociomaterial practice necessarily also embodies it (Merleau-Ponty, 1962). The project manager in charge of a particular collaborative engineering practice develops a deep understanding of workshop design, tools and techniques that becomes incorporated in his body as specific know-how. This embodiment of a practice plays a role in the research design because it tends to guarantee the practice's correctness and its constancy over time (Bourdieu, 1990, p.54). Collecting and analyzing data about the embodied, physical aspects of a practice, can therefore help to unveil its logic through the discovery of action patterns that are constant over time.

Time, in fact, is another essential constitutive element of practice. Practices are temporal (Shotter, 2006, p.591), not only because they, obviously, take place in time. Because we are bodily entwined with our practices, we are able to anticipate how the activities we are involved in, will unfold in the immediate future. The trainer using a presentation senses how the trainees will respond to it; the business unit manager negotiating a new contract can anticipate whether there will be conflicting interests, and so forth. Practitioners are always ahead of themselves in living the present action and expecting, guessing, anticipating the future ones. Practice theorists say that "to practice is to anticipate" (Bourdieu, 1990 p.81; Sandberg & Tsoukas, p. 344; Shotter 2006, p. 591).

This way of experiencing time characterizes practitioners involved in any practice, is contemplated in the design of data collection and analysis strategies, and is present in all the papers in this study. The temporality of practice receives particular emphasis in the part of this study that is concerned with the implications of client-consultant interactions for the development of the firm's strategy.

4.3 An epistemology of practice – modes of engagement

The choice of approaching (any) practice as a holistic, entwined, embodied, temporal entity entails the adoption of an epistemology adequate to appreciate the various modes of practitioners' engagement in their practices.

Dreyfus, building on Heidegger (1962), observes that practitioners' primary mode of engagement in a sociomaterial practice is "absorbed coping" (Dreyfus, 1991, p. 70), that is dealing with the world non-deliberately. Tsoukas (2010, p. 58) refers to the same kind of engagement as "practical coping". Absorbed, or practical, coping is a mode of engagement through which practitioners are involved in their practices, without being aware of all the minutiae their involvement in that specific practice entails. In this fundamental mode of engagement agents spontaneously respond to the unfolding of the situation in which they are. They act spontaneously because everything in the practice appears known, transparent and immediate to them. They do not need to think to perform the actions the practice requires. As an example of absorbed coping we can consider a trainer who is about to deliver a power point presentation that he has delivered a number of times before. He will start up his PC, open the file, go to full screen modus and get smoothly through all his slides presenting and commenting, without thinking much of each of the many actions he is actually performing. Everything goes as it is supposed to go. The practitioner is *absorbed* in the practice, which he embodies and performs just as expected.

Absorbed coping, despite being a fundamental mode of engagement with practice, is not the only mode of engagement. If something occurs that interrupts the usual and expected flow of activities in the practice, the practitioner's mode of engagement changes. Imagine that the trainer starts up his PC and discovers that some slides of the presentation have been deleted by mistake. The trainer cannot perform the presentation as usual. He has to stop the flow of

his actions. He must deliberately think about his own practice. He has to act deliberately to handle this breakdown. He has to realize that he needs to rewrite the missing slides before the presentation can start. His mode of engagement changes, here and now, from absorbed to *deliberate coping* (Tsoukas 2010, p. 58). In this mode the trainer is still performing his practice, but the details of the trainer's activities, the inner structure of the practice, become visible, externalized, objectified to him. The trainer becomes a subject who knows, i.e., thinks of and acts upon, an object (his training practice). This specific insight has important methodological consequences, as we shall see.

Besides absorbed and deliberate coping, Tsoukas (2010, p. 58) mentions a third mode of engagement in a practice; *detached coping*. Imagine that the day after the class, the trainer thinks about the problem he just experienced. Now he does not have to cope with an immediate practical training task. He is just reflecting on his own training practice in a detached manner. His mode of engagement with the same practice changes again, to *detached coping*. In this mode he is not about to perform the presentation. He is not about to fix the problem either. He is in his office, recalling what happened the day before; being thematically aware of the problem with his '.ppt file'. He takes what was a contingent problem out of its original context, the classroom, and brings it to a higher abstraction level, probably asking himself questions like 'how can I avoid this problem next time?' In other words, he copes with his practice in a detached, not-contextualized, abstract way, and in doing so he can become aware of, appreciate and rationalize, some elements of his own practice (Schön, 1983; Yanow & Tsoukas, 2009).

This epistemology of practice has theoretical consequences for the modeling of organizational phenomena such as collaborative problem solving, organizational ingenuity, or strategy, as they unfold, through the particular doings in which people and things are actively engaged within a historical context (Sandberg & Dall'Alba, 2009).

The adoption of this epistemology has also methodological consequences in that it requires a research design able to appreciate different kinds of data concerning each of the three modes of engagement with the world. It also requires that the researcher be aware of his own modes of engagement with the sociomaterial practices under inquiry. These consequences for the research design will be discussed in detail in the chapters about the research method.

4.4 The inherent creativity of human action

In this study, the use of the epistemology of practice just presented is based on a conception of human action as inherently creative. When individuals engage with the world, their actions are always inherently creative. This fundamental assumption is based on the seminal work of Hans Joas (1996). Following Joas (1996), this study adopts a view of human action that, rather than marginalizing the creative dimension (as it is the case in rational or normative models of action) highlights it and puts it at the center of human action. Joas (1996) argues

that creativity is not to be defined in opposition to rationality, but needs to be considered as an integral part of all human experience and bases its view on the American pragmatism's model of action (Dewey, 1958; Peirce, 1974).

The typical pragmatist schema anchors doubt in action, which is conceived in terms of a model of periodically recurring phases. According to this model, all perception of the world and all action in the world are anchored in an unreflected belief in self-evident given facts and successful habits (which makes adsorbed/practical coping possible). However, this belief, and the routines of habit based upon it, are repeatedly shattered; what has previously been a habitual, apparently automatic procedure of action is interrupted (here is where practical coping stops and deliberate coping starts). The only way out of this phase is a reconstruction of the interrupted context. Action must be applied to different points of the world or must restructure itself. This reconstruction (i.e., an expression of either deliberate or detached coping) is a *creative* achievement on the part of the actor. "If he succeeds in reorienting the action on the basis of his changed perception and thus continuing with it, then something new enters the world: a new mode of acting, which can gradually take root and thus itself become an unreflected routine" (Joas, 1996, p. 128-129).

All human action is caught in the tension between unreflected habitual action and acts of creativity. The creative elements of human action are thus related to the ongoing processes of 'shattering' and 'reconstruction' and are performed in situations that call for solutions.

Regarding this view of human action, a few points should be noted that have particular relevance for this study. First, the processes of shattering and reconstruction are not teleological, in the sense that they do not assume that an individual's entry into a situation, as well as the assessment of the forms of action appropriate therein, are logically prior to the enactment of those actions (i.e., thinking first, having a goal in mind, then acting). Rather, there is no cognition-action dualism. The agent's entry into a situation, his conception of appropriate goals and his decision to act (e.g. shattering or reconstructing) emerge in the course of action. His concrete action is eventually pulled from the stock of potentially enactable actions the agent already carries around in his store of habits and routines (see the concepts of *habitus* in Bourdieu, 1990, and that of *style* in Dreyfus, 1991). Shattering actions do not need to be premeditated. They do not even need to be targeted. They are rather the unpredictable result of unique, situational settings.

Furthermore, according to this view of human action, individuals perceive their world through their bodies and, in opposition to the rational and normative models which assume that the actor has full cognitive control of his/her body when acting rationally, in a creative account of human action bodily 'control' is not an issue. There is no mind-body dualism. The body is the site of both perception and action and 'not' the container of the mind. Intentionality is inherently corporeal, perception and action are two different modes of the same corporeality

(Merleau-Ponty, 1962). That is, perception of and reaction to situational constraints are bodily expressions. A direct consequence for this study is that bodily expressions should be included in the operationalization of the concept of practice.

Finally, this view of human action fully supports the relational dimension of practice. In fact, in pragmatism an individual's autonomous ego actually exists, not because it is endowed with certain ontological characteristics (as in the egocentric Cartesian traditions of rationality), but because the self undergoes empirical processes of development (socialization) that bestow the capacity to set boundaries between subject and environment and thus to act *and interact* in relatively individualized and autonomous ways.

This view of human action has theoretical implications for the understanding of the creative processes in problem solving, and for the conception of the fundamental components (belief, shattering, re-construction) of potentially any sociomaterial practice, and in changes thereof. Other theoretical implications derive from the exclusion of models that are exclusively based on rational or normative views of human action.

The methodological implications are mostly related to the need to adopt modes of data collection and analysis that make it possible to catch and understand the connection between the various components; belief, shattering and reconstruction. The research design chapters provide the details of how these implications have been taken into account in the data collection and analysis.

5. Using four papers to provide an exploration of client-consultant interaction practices

The definition of practice presented above and the chosen epistemological approach, provided the theoretical stance of this study, and guided the choice of the research questions in the papers.

The materialization of the research questions and the development of the papers, were not a linear process. The research questions were all conceived within the realm of the practices through which consultants interacted with their clients to solve complex, ill-structured problems. The four papers were developed more or less in parallel from the same data. All papers address the overall research questions, but each does so with a distinctive theoretical and empirical scope. A short synopsis of each paper follows.

5.1 Paper 1: The creation of ingenious solutions

In virtually all of the cases studied the client's most urgent need was to find a solution to some problem, and the consultant's most common wish was to prove to be the best service

provider by finding novel and useful solutions. Both had the challenge of handling many constraints on their way to the final solutions.

Handling constraints could be seen as a question of maximizing value creation for the client. At the same time, for any actor involved in the problem solving, handling constraints was a question about being creative and finding ingenious solutions. The question about the assessment of the value actually created was left for a separate paper. This first paper (paper 1, title: “Constraint-shattering practices and creative action in organizations”³) was meant to highlight the *creative* aspects of the practices through which clients and consultants interacted. Client-consultant interactions are often related to the search for novel solutions to ill-structured problems (Newell et al., 1962). Creative work and the solving of ill-structured problems in project organizations are characterized by a need to handle many kinds of constraints (Sternberg & Kaufman, 2010). Theoretical and empirical research articulates constraints as something that both enable and restrain creative work (Joyce, 2009; Negus & Pickering, 2004; Onarheim & Biskjaer, (in press); Onarheim & Wiltschnig, 2010; Stokes, 2008). Whereas some studies conclude that constraints in the work environment are detrimental to creativity (Hennessey & Amabile, 2010; Salter & Gann, 2003), others find that constraints are a prerequisite for (Dyer, Gregersen, & Christensen, 2009; Joyce, 2009), or even lead to, creative breakthroughs (Stokes, 2005), opening numerous research questions about how practitioners handle constraints.

Previous research has produced evidence of numerous constraint-handling practices (Gero, 1990; Onarheim, 2012; Onarheim & Biskjaer, (in press); Stokes, 2007) which practitioners draw upon when they define and explore their own problem spaces (Newell & Simon, 1972). Yet the constraints remain excluded from the conceptualization of the creative act itself (Klausen, 2010; Sternberg & Kaufman, 2010). The *practical logic* of constraint handling (Bourdieu, 1990; Schatzki et al., 2001) remains either ill-conceived or out of the research scope.

In this paper the authors develop the study of constraint handling from within theories of action that view all human actions as inherently creative, such as the theory of action of American pragmatism (Dewey, 1958; James, 1922; Mead & Morris, 1938; Peirce, 1932-58). According to pragmatists, all human action involves problem solving, and it develops creatively by shattering old constraints and reconstructing new ones (Joas, 1996). Pragmatists consider constraint shattering as a fundamental form of constraint handling and as a source of creative action. Thus, creativity can be understood by means of its connection to constraint handling. Yet we do not know enough about how shattering is enacted by practitioners. Thus, the research question is: *how do project teams shatter constraints in ill-structured problem-*

³ This paper has been accepted for publication in *Organization Studies*. Publication expected in May 2014.

solving situations, and what implications does this finding have for the understanding of creative action in organizations?

Empirical data were collected from 12 projects in two engineering consulting firms, and four kinds of shattering practices were identified.

Some of the shattering practices (labelled *protesting*) were characterized by patterns of confrontational actions, which generally were used to question the project team's willingness to accept the given project constraints.

A second group of shattering practices (labelled '*proposing*') was represented by actors who, after becoming aware of the constraints, limited themselves to propose a series of alternative solutions to work around the constraint.

A third pattern of very disruptive practices was characterized by an unrestrained production of 'illegal' solutions. The actors did not protest against the constraint, but they did not accept it either. This group of practices was labelled '*betraying*' practices, because the actors consistently and explicitly worked against the boundary conditions that the whole project team had, apparently, agreed upon.

In a fourth group of practices the actors worked secretly against the unwanted consequences of a given constraint. They conspired to achieve a different definition of the project's purposes and set up, but never engaged in, public interactions that could unveil their intentions. The actors engaged in a kind of *sabotage*, changing the rules of the game and imposing their own agendas.

Some shattering practices, for example protesting and proposing actions, directly addressed the constraint itself as it was understood by the project team. Others, for example betraying practices, related only *indirectly* to the constraint by addressing its feared consequences. In the latter case, it was more difficult to recognize the shattering effects of the practice, seize these effects, and manage the creative reaction.

The findings show that most shattering practices can be placed in a continuum identified through two axes identifying the openness of the shattering (open – hidden) and its directness respectively (direct – indirect).

The theoretical implications of these findings are that in situations in which ill-structured problems are solved, constraints may lead to creative action through shattering practices. Furthermore, this implies that opportunities for creative action vary across the observed shattering practices. The more open and direct the shattering practice is, the more opportunities there are for evoking creative reaction. An important methodological implication is that the research designs aimed to understand creative practices should give attention to data on shattering. The practitioner who is aware of these variations has more opportunities to discover and manage shattering as it emerges.

5.2 Paper 2: Creativity in client-consultant interactions

The research done during the production of paper 1 had highlighted the strong presence of creative action in the practices through which clients and consultants collaborate in problem solving. The data collected and analyzed gave the opportunity to focus even more on the creative aspect of these practices, stretching the research scope beyond that of the first paper. To take this opportunity a second paper (paper 2, title: “We-engineering. Three steps to leverage your clients’ creativity⁴”) was realized. The structure and the style of this paper are tailored to target practitioners. It aims to highlight the best practices of practitioners who are successful in leveraging the creative resources of their clients. A short synopsis follows.

Year 2014. Because of the economic slowdown of the past decade, large professional service markets (such as those of civil infrastructures, information technologies, logistics, or pharmaceuticals) in the richest countries of the Western world tend to privilege low cost solutions, and well proven, stable technologies. This trend favors the entrance of service providers from countries with lower overhead costs, who promise good quality, at a fraction of the cost of the local incumbents. Local firm’s hourly rates are relatively high, which makes competing on prices a serious challenge, if not an unsuitable strategy. Take the case of public tenders for highway infrastructures. Local firms claim a high degree of specialization within several engineering fields, and many reference projects to show that its services can be tailored to the client’s specific needs. Nonetheless, international competitors make the same claims, give similar references and offer lower prices. Apart from the pricing, it may be difficult for clients to understand what makes the incumbent’s offer unique or different from those of the new entrants. Local firms may either cut prices, with the consequences it entails, or try to make their prices worthwhile to pay.

The answer is a counterintuitive one. The research and consulting we have done in about 15 large (about 200M US\$) civil infrastructure engineering projects in Western countries, show that the answer is hidden in the client’s participation in the firm’s value creation practices. Client’s creative resources are an essential ingredient to produce *unique* value propositions.

Our research focused on the collaborative practices through which successful service providers leveraged their clients’ creative resources and engineered very high value solutions. We called these practices ‘*we-engineering*’. In this paper we provide details on how it works in practice.

We-engineering goes beyond the conventional cooperative approaches whereby the client’s main role is to provide requirements, ongoing quality checks, and final approval. And it differs dramatically from the specialists driven approach to professional service provision. We-engineering helps clients put their own creative interaction with the consultants at the core of their problem solving. This is not to say that we-engineering is the right approach in providing any kind of professional services. But for many firms that face ill-structured problems, in price sensitive markets it may be the only viable source of competitive advantage.

⁴ This paper is in the process of being submitted to Harvard Business Review

We-engineering principles. The aim of we-engineering is to leverage client's creative resources and to stimulate creative interaction with their consultants. Our research shows that the practices of the most successful service providers presented a recurring pattern of action including a sequence of three steps (adapted from Joas, 1996).

1. *Profess faith.* Start the creative process by acknowledging and stating your assumptions, unquestionable truths and anything that you take for granted for whatever reason.
2. *Shatter truth.* Deny the validity of your own assumptions. This is done through provocative words, utterances, drawings, movements, behaviors or anything else that can push you and the others out of your habitual routines and practices.
3. *React and rebuild.* Explore novel aspects unveiled by the shattering, and build on it.

What characterizes good performers seems to be their awareness of a set of simple principles.

The principle of transparency. The principle of *transparency* applies to the first step, profess faith, and requires that it be the result of honest and truthful self-reflection at the individual level before being transparently shared at the 'we' level, with the rest of the team.

The principle of disruptiveness. The shattering action must be powerful enough to provoke the receivers and force them out of their habitual thinking patterns.

The principle of constructiveness. This principle applies to the receiver of the shattering action and requires him, or her, to react constructively. The actor should use the disturbance as an inspirational input, instead of discarding it as a useless absurdity.

This paper shows in detail how these principles affect the design and management of ill-structured problem solving processes. Concrete suggestions are given to guide practitioners in their design of problem solving workshops, and to remind them of the attitude necessary to perform creative actions.

5.3 Paper 3. Offering unique value to the client

The question about the value created through client-consultant interaction practices, present from the start of this study, but left out of scope in the two first papers, could be pursued and developed in the third paper (paper 3, title: "The Pra.v.d.a. model. Measuring the value of co-creation practices⁵"). Data about the same practices, in the same cases, could now be analyzed from the point of view of the value requested by the clients and offered by the consultants. This paper is positioned in the value creation literature and guided by the practice theory approach discussed earlier. The scope, the purpose and the research design in this paper are established and developed according to the precepts of engaged scholarship (Van de Ven, 2007) in tight collaboration with some of the practitioners involved in the cases.

In this paper, particular attention is given to the practices through which service providers intervene to deliver services in the client's own value creation process. In the value creation

⁵ This paper has been submitted to the Journal of Service Research, and is under review.

literature, and in this study, these practices are referred to as *co-creation* practices (Grönroos, 2008).

Providers of professional services need to compete in their markets by showing the uniqueness of their value propositions. Buyers of professional services, who have to choose among competing offerings, face two fundamental challenges. The first is the challenge of deciding the definition of value that they should adopt. The second challenge is to understand whether and how their own interactions with the service providers have implications for the value creation they expect.

In the literature there is no agreement on how this *value* should be defined (Howden & Pressey, 2008; Payne & Holt, 2001). Conceptual and empirical research to investigate practices of consultant-client interaction from the value creation perspective is scant (Lindgreen & Wynstra, 2005). Consequently the significance of these practices for the definition and assessment of the value created through these interactions is not sufficiently understood (Payne et al. 2008, p.89; Ramirez 1999, p.59; Aarikka-Stenroos & Jaakkola 2012, p.15).

Building on value creation and practice literatures, this study proposes a value definition and assessment model that accounts for the contingent nature of value, and mirrors the unique professional practices through which value is created.

This paper extends current research on value creation (e.g. Payne et al., 2008; Ramirez, 1999; Vargo & Lusch, 2008), by proposing a value definition and assessment model that accounts for the contingent nature of value, and mirrors the unique professional practices through which value is created. The concepts of economic, cultural, social, and symbolic *capital* (Bourdieu, 1986; Bourdieu & Wacquant, 1992) and that of *currency* (Oakes et al., 1998) are central in this model.

The practice based value definition and assessment model (Pra.v.d.a.) conceptually developed in this paper is empirically tested in three categories of cases (high, medium and low value created). One case from each category is presented in the paper.

The results of the Pra.v.d.a. model testing show that, by defining value in terms of changes in capital, and by defining the broader concept of capital through the use of the concept of currency, buyers of professional services can define and operationalize any of the four forms of capital, drawing on their own experiences and using the vocabulary typical of their own practices.

The results of the application of the Pra.v.d.a. model show also that buyers of professional services may enact three main typologies of practices that have implications for value creation. These typologies comprehend *providing* or *denying access* to various forms of capital; *enabling* or *disabling capital exploitation*; and *preventing* or *promoting attrition* of capital.

These findings have theoretical implications for the definition of value as created through these typologies of practices across organizations and across disciplines. The findings have theoretical implications also for further development of value assessment models, and for discovering and explaining the c-c-i practices behind changes in capital. Following the procedure used to build the Pra.v.d.a. model, researchers can develop new models to study the features that characterize these practices. Practitioners can use the Pra.v.d.a. model to discover and interpret value creation in light of their own c-c-i practices. This interpretative effort is a first step towards acknowledging their c-c-i practices, seizing the opportunities they provide, and preparing to manage them to create higher value.

Methodological contributions include a guide to the empirical data gathering and analysis procedures necessary to use the Pra.v.d.a. model. The model's limitations are related to its mathematical construction, and to the set-up of the model testing.

5.4 Paper 4: Implications for emergent strategy formation

The literature reviews and the findings in the three previous papers suggest that the ability to deliver ingenious solutions, to leverage the creative resources of the client, and to provide unique value propositions may be a matter of strategic importance. In those papers, this possibility is simply left to intuition and not explicitly addressed. The fourth paper (paper 4, title: "The emergence of strategy: the role of mundane business operations"⁶) was therefore meant to approach the question about what implications client-consultants interaction practices have for the development of the firm's strategy.

This question offers two counterintuitive challenges. The first challenge is to think of mundane business operations as a potential locus of strategizing. The second is to account for the presence of extra-organizational actors, the clients, in the most sacred of the internal processes, the formation of new strategies.

In the literature *strategizing* is defined as a socially accomplished activity (Jarzabkowski, 2004), that comprises the situated practices that multiple actors draw upon in the making of strategy (Jarzabkowski et al., 2007). From the strategy literature, we know that strategy formation may happen at many different places in the organization (Mintzberg, 1987; Regner, 2003) and on its borders (Løwendahl & Revang, 1998). Furthermore, we know that strategy formation may involve individuals or groups, such as extra-organizational actors, who are not

⁶ This paper has been submitted to Strategic Management Journal.

traditionally considered as the firm's strategy practitioners (e.g. Hoon, 2007; McNulty & Pettigrew, 1999; Sturdy, Schwarz, & Spicer, 2006; Whittington et al., 2003).

The mundane and informal social practices through which emergent strategies are formed, and the role of extra-organizational actors, are therefore two particularly relevant elements in the explanation of strategy formation. Yet, there is a lack of explanations of how mundane business operation practices are related to the strategizing practices of an organization (Hendry & Seidl, 2003). Furthermore, the debate on how extra-organizational actors may influence strategizing practices has been mainly conceptual (Mazza & Alvarez, 2000), and has paid little attention to empirical strategy research so far (Jarzabkowski & Spee 2009).

This paper addresses these two knowledge gaps. Luhmann's theory of social systems (Luhmann, 1995) is chosen to conceptualize the set of communications between consultants and clients, who interact during mundane business operations, as a social system. Following this theoretical approach, an account is given of the emergence of new strategies from within this social system (i.e., from within mundane business operations).

The findings show that strategy emergence can be explained in terms of variations in the communication structures of the social system. In particular, it is shown how variations are generated by temporary breakdowns in the communication with the client.

Breakdowns in the communication structures may vary in terms of their intensity and strategic relevance. The *intensity* of a breakdown is a measure of the amount of variation it induced in the communication structures. A breakdown's *strategic relevance* is a measure of the extent to which it addressed areas of strategic concern for the firm.

The paper findings are summarized in the following propositions.

Proposition 1: Clients are a source of breakdowns, in communication structures, that challenge the status quo, and impact the emergence of the new strategies.

In particular,

Proposition 2: Breakdowns with high intensity and high strategic relevance stimulate the conception and initiation of emergent strategies.

Proposition 3: Breakdowns with high strategic relevance catalyze and accelerate the emergence of new strategies.

This study yields two counterintuitive theoretical contributions. First, this study explains that the client has an active role in the emergence of new firm strategies. Thus, it extends current theories on the practices through which extra-organizational actors participate in strategizing (Jarzabkowski and Spee, 2009). Clients participate in the firm's strategizing to the extent the operational activities in which they are involved are intertwined with strategy formation activities. Mundane business operations provide the client with a temporally and spatially delimited arena for strategizing along with the firm's executives.

Second, this study explains the intertwinement between mundane business operations and strategizing. This is done by providing an account for strategy formation outside the formal strategizing processes, in terms of client-consultant communication practices. Introducing the concept of social system, as a set of communications between firm and client, this study challenges the understanding of the firm's boundaries and the understanding of strategy as something that happens within the firm's boundaries. Furthermore, the concept of temporary breakdowns in the communication structures allows an observer to identify the emergence of a new strategy as the concrete ongoing, changeful expression of variations in the social system itself. The breakdown categories unveil the basic features of the communication practices through which clients can destabilize the truths and beliefs on which the firm's intended strategies were built in the past. The same features explain how the firm's executives are prompted to reconsider present situations, and to envision their firm's future.

6. Concluding thoughts on the guiding theoretical principles for this study

Looking at the theoretical positioning and methodological approaches used in the four papers, two theoretical principles appear as the most fundamental ones; the view of human action as inherently creative (Joas 1996), and the entwinement logic of practice (Sandberg & Tsoukas, 2011). The former principle provides guidance when approaching the research questions in the two first papers (on organizational ingenuity and creativity). The view of human action as inherently creative was also used in the explanation of value creation practices and emergent strategy formation (third and fourth paper respectively). The latter principle informs the research methodology, pervades all data collection and analysis, and makes it possible to take into consideration of bundles of practices.

7. Research methodology

This chapter presents and discusses the overall research design and strategies employed to collect and analyze data. Many of the elements of this research are easily recognizable as instances of well-known principles for qualitative inquiry. Others are more idiosyncratic to the research topic, and to this particular study.

7.1 Introductory thoughts on the research design

The research design shall answer the overall research questions: *How do client-consultant interaction practices influence a firm's ability to offer unique value propositions, and deliver ingenious solutions, and how do these practices influence the formation of the firm's strategy?*

This study concerns the phenomenon of client-consultant interaction. The study has to target and explain the c-c-i practices and the relationship between c-c-i practices and specific areas of strategic concern for the firm.

The literature review reveals that the phenomenon of client-consultant interaction has been approached from various theoretical points of view, and that there is not a cumulative body of knowledge that identifies one main theoretical stance or one grand theory of client-consultant interaction practice and of its relations to organizational ingenuity, value creation, or strategizing. The research design is therefore mainly explorative. This, in turn, is one reason for the adoption of mainly qualitative data, yet not the only one.

The endeavor of grasping the logic of c-c-i practices (Bourdieu, 1990; Schatzki et al., 2001) is central in the research design. To put *practice* at the center of my research design, I adopt research methods that make it possible for me to engage in an inquiry of practitioners' diverse modes of engagement with their work (Sandberg & Tsoukas, 2011). I encounter the practitioners in their own fields, and use case studies (Eisenhardt & Graebner, 2007) to collect and analyze data about their lived experiences and their subjective perspectives and interpretations.

Choosing qualitative data, I do not have to predetermine precise constructs and measures in order to collect and analyze data about such a complex phenomenon as c-c-i practices. I rather need data that are concrete and vivid in order to stimulate cognitive processes (mine and of my informants) that foster the development and communication of ideas. I also need data that are rich and nuanced (Weick, 2007) to capture details and mechanisms that are easily overlooked in quantitative data (Graebner, Martin, & Roundy, 2012).

In the following, I repeat the definition of practice. I then explain my sampling strategy and my data collection and analysis (Langley, 1999; Miles & Huberman, 1994). The limitations of this research design conclude this chapter.

7.2 Level of analysis

The research questions in this study are all concerned with the engagement of practitioners in c-c-i practices. All the research questions in the four papers have this level of analysis. Nevertheless, each paper addresses complementary aspects of the same practices, such as the creative elements, the definition and assessment of the value created, and the strategic roles of the individuals and groups who enact these practices.

7.3 Unit of analysis

We are always *already* entwined with other persons and things in specific sociomaterial practices (Orlikowski & Scott, 2008). From the adoption of this perspective follows the choice of the unit of analysis. The unit of analysis must be one that can grasp specific combinations of certain actors, socio-cultural contexts, cognitive frames, artifacts and structural properties (Regnér, 2008).

Rather than the firm, or parts of it, the practitioners, their processes, or their capabilities, the unit of analysis in this study is *the practices of client-consultant interaction (c-c-i practices)*.

The definition of practice adopted in this study highlights its components and their being intertwined (Reckwitz, 2002, p. 249). Clients and consultants who interact enact various kinds of practices. Using this generic definition of practice makes me able (through appropriate operationalization) to approach the diversity of these c-c-i practices described in the various papers, emphasizing the significance of inter-linkages and interdependencies among these practices.

Reckwitz's (2002) definition is essential to the operationalization of the concept of practice. It highlights the building blocks of any single c-c-i practice or bundle of c-c-i practices. In line with this definition, the data collection and data analysis strategies are designed to address the relational totality of significance for c-c-i practices (including the embodied nature of these practices and their temporality).

Regnér (2008) suggests using 'activity configurations' as a unit of analysis in this kind of studies. I use Reckwitz's (2002) definition of practice, while keeping in mind the intentions behind Regnér's (2008) suggestions, *inter alia*, to permit a fine-grained examination of multiple practices and their possible combinations. Nevertheless the unit of analysis adopted in this study, the c-c-i practices, is meant to reach even deeper in the discovery of the single constitutive elements of the practice, making the data collection even more fine grained.

The sections about data analysis strategies explain how the definition of practice and the concept of entwinement are made operational. In addition, they explain what role do temporality and embodiment of a practice play in the research design.

7.4 Sampling strategy

I define *case* as an episode (Hendry & Seidl, 2003) in which consultants (from a service provider firm) interact with their clients (the service buyers), and/or third parties (i.e., other kinds of stakeholders, not buyers), within the boundaries of an assignment. My sampling strategy requires the sampling of firms, and then of multiple cases within each firm.

Rationale behind the use of (multiple) cases

I use both single case analysis (paper 4) and multiple case studies (papers 1, 2 and 3). I use a single-case study when I decide to provide rich descriptions of the existence of a phenomenon (the emergence of a new strategy).

Multiple cases are chosen for several reasons. In general, multiple cases enable a "broader exploration of research questions and theoretical elaboration" (Eisenhardt & Graebner, 2007, p.27), and deeper grounding of my propositions in varied empirical evidence. Multiple cases also enable comparisons that clarify whether an emergent finding (such as patterns of shattering action, paper 1, or capital handling, paper 3) is simply idiosyncratic to a single case or consistently replicated by several cases (Eisenhardt, 1991).

Some more specific theoretical reasons for the choice of multiple case analysis include the search for replication (such as in paper 1 where constraint shattering practices are being replicated), contrary replication (such as in paper 2 where the analysis of the best practices is done observing cases where these practices were not enacted), or elimination of alternative explanations (such as in paper 3 where this is used to find alternative explanations for value creation) (Yin, 1994).

Finally, constructs such as the various c-c-i practices, and their mutual relationships can be more precisely delineated because it is easier to determine accurate definitions and appropriate levels of construct abstraction from multiple cases, than it is from single cases only (Eisenhard & Graebner, 2007).

Furthermore, I expect variations in how c-c-i practices are enacted by different actors in different contexts, and I need to approach this variation, define it, and explain it. Using case studies I can try to explain *how* practitioners engage in c-c-i practices, and *why* they do so differently in different settings.

Hence I have to set up multiple cases which vary on *two* sets of key theoretical dimensions: those related to the settings in which c-c-i practices are studied (i.e., characteristics of the consultant service provider, of the assignment, and of the client); and those related to the organizational aspects being explained (i.e., expected/actual value created through the assignment; the expected level of ingenuity/creativity of the output of the assignment; the strategic importance of the assignment for the service provider; and the strategic position(ing) of the service provider).

Main criteria for theoretical sampling

Based on these needs, I conducted a theoretical sampling, looking for cases that could offer theoretical and practical insights into the multiple facets of c-c-i practices (Eisenhardt & Graebner, 2007) in various settings where consultants and clients interact. The main criteria that guided my theoretical sampling are exposed in the following.

Transparency. C-c-i practices are by nature complex. This study demands cases where c-c-i are accentuated and observable. It also requires informants that are reflective about their practices. I looked for cases where the phenomenon was particularly transparent (Pettigrew, 1990).

Access to key informants. Studying c-c-i practices also requires the possibility to experience the practices as they are enacted, in order to appreciate the practitioners' different modes of engagement with the world (practical, deliberate and detached coping) (Tsoukas, 2010), beyond the mere post-hoc rationalizations of the phenomenon they give during interviews. It requires deep access to cases and to informants. Good access is important when selecting cases for developing theoretical insight (Eisenhardt & Graebner, 2007). I looked for firms that could grant me that kind of access.

Background knowledge of the firm. Studying work practices requires knowledge of the organization, its history, work habits and routines, way of organizing projects, way of

conceiving client relationships, standards of excellence (Bourdieu 1990, Sandberg & Tsoukas, 2011). I could search among the firms for which I had accumulated this kind of knowledge, as a practitioner during the years before this study. These firms were within the sectors of financial services (insurance), research and development (within microelectronics and informatics), manufacturing (metal products), engineering (civil infrastructure, offshore/oil and gas) and management consulting. These firms provide different services to different clients, through different kinds of assignments. For this reason, the choice of the firm is also influenced by the choice of a typology of assignment that is considered most useful for my theoretical sampling.

Rationale behind the choice of typology of assignment

Keeping in mind the main criteria for theoretical sampling, I chose to sample cases, among multidisciplinary engineering projects where engineering design workshops were conducted. I have several reasons for this choice.

Engineering design workshops have the characteristics of episodes (see Hendry & Seidl, 2003) in which consultants and clients interact to analyze and solve problems (Cherns & Bryant, 1984; Stabell & Fjeldstad, 1998; Vargo & Lusch, 2004). C-c-i practices can be expected to emerge and to be observable in the specific context of problem solving undertaken by large project teams and smaller subgroups (Payne et al., 2008). The literature provides several useful conceptual frameworks for approaching episodes such as engineering design workshops (e.g. Aarikka-Stenroos & Jaakkola, 2012; Stabell & Fjeldstad, 1998)

Practitioners working within engineering projects face often ill-structured problems that may call for creative solutions (Stacey & Eckert, 2010). This gives researchers the opportunity to study the creative aspects of c-c-i practices.

Providers of engineering services tend to choose their assignments and their clients on the basis of the firm's strategic preferences (Skjølsvik et al., 2007). Policy decisions in these firms can also take place during project operations (Stabell & Fjeldstad, 1998). This fact might create opportunities to inquire into the implications of c-c-i practices for strategy formation.

Various works on engineering projects have identified a large set of variables affecting engineering project success (Chan, Scott, & Lam, 2002). These variables include (adapted from Chan, Scott, & Chan, 2004)

- basic administrative characteristics (e.g. budget, schedule, and scope);
- project staff characteristics (e.g. level of involvement of several business units, from the same firm, in multidisciplinary projects; kinds of consultants engaged; kinds of clients; whether third parties are involved in the project);
- expected project output (e.g. projects where a creative output is expected and projects where it is not expected; main focus on product innovations and technology development, or on service innovations and development of project solutions); and

- external/political context or framework (e.g. project mainly exposed to corporate directives or mainly exposed to public political processes).

These variables can contribute to variations in the context (i.e., the engineering project) in which c-c-i practices are enacted. In order to include a greater variety of contexts I sampled cases from engineering projects that presented differences of that kind (Eisenhardt, 1989) (table 2).

At this point, the definition of a case in this study can be further specified as an engineering design workshop (the episode) (Hendry & Seidl, 2003) in which consultants (from a engineering service provider) interact with their clients (the service buyers), and/or third parties (i.e., other kinds of stakeholders, not buyers), within the boundaries of an engineering project.

7.5 Two firms to study 30 cases of c-c-i practices

This sampling strategy influenced my choice of focal firms, and the selection of the cases the firms gave access to. Engineering projects can be found in various business sectors. In this study, I tried to sample cases (i.e., engineering design workshops within engineering projects), from different kinds of firms. The next sections present the firms chosen and further details of the case selection procedures.

To address the strategizing aspect of c-c-i practices, as requested by the overall research questions, it was necessary to sample cases that could provide data about the strategies of the firms engaged in the projects to be studied. Under the assumption that having several cases from the same firm would help to collect more data about the strategies of the same firm, the cases were chosen from a restricted number of firms. In my network of professional contacts several firms (engineering consulting firms, construction firms, and manufacturing firms) were found to have ongoing projects that offered cases of intensive client-consultant interaction. Among those firms I chose those two that, after intensive negotiations, were in the position of providing me with the necessary (i.e., comparatively highest) level of access to their events, corporate data, and personnel. The data for this study were collected from these two firms: Civeng and Metal.

Firm 1- Civeng

Civeng employs 2,500 people, mostly in Europe, and has offices and operations in more than 20 countries worldwide. The organization is a professional service firm (Von Nordenflycht, 2010) that provides engineering design services in several fields such as civil infrastructures, hydropower and oil and gas. Civeng carries out several thousands of projects every year. The majority of the civil infrastructure projects are performed for municipalities, regional authorities, or the State (e.g. for the Ministry of Transportation). Many of these civil infrastructure assignments are multidisciplinary projects, with a consulting budget in the range of 1MEUR, duration between 6 and 20 months, and a scope allowing for value creation

through creative and functional engineering solutions. Clients are typically individuals with a level of education (MSc, PhD) comparable to that of the consultants. The clients are engineers, planners, scientists, etc., who represent the authorities and/or the public administration. The participation of clients and third parties (e.g. representatives for the local communities) in the development of the engineering design and solution is often regulated by the law. The firm has to comply with the public infrastructure development regulations, and organize its project work in order to facilitate the collaboration between consultants, clients and third parties. At Civeng data were collected from 16 cases (table 3).

Firm 2- Metal

Metal is engaged in the production of metals and in the manufacturing of metal products for applications in markets such as housing, solar, HVAC&R, and automotive. Metal employs more than 20,000 personnel worldwide, and their HQ is in Europe. The organization's research and development division (R&D), employs 600 consultants, metallurgists, engineers, and various kinds of scientists. R&D delivers tailor-made engineering design and applied research services to Metal's internal market worldwide. Metal's R&D division runs smaller projects than Civeng with budgets typically below 1MEUR. The clients of this firm are also often highly educated engineers and managers.

R&D projects are mainly run for internal clients (i.e., manufacturing plants, business development units, and sector management groups). These projects are very often multidisciplinary and may involve the client. But the client's participation in the engineering design is not always requested, nor is it regulated by corporate regulations or best practices. At Metal, the term 'co-creation workshops' is used for engineering workshops which entail intensive client-consultant interactions. These workshops are usually promoted, designed and facilitated by the R&D consultants. Clients are routinely invited to participate, and may accept or decline the invitation. Clients who have experienced that positive value was created through the c-c-i practices used in these workshops, may be more willing to participate, and may even take the initiative to promote similar practices in their own projects. At Metal, data were collected from 14 cases (see table 3).

In total the two firms provided 30 cases (16 cases from Civeng, and 14 cases from Metal).

Similarities and differences between the two firms

Both Civeng and Metal's R&D seemed to present sites where the phenomena under investigation (c-c-i practices) had been important, sometimes of an extraordinary positive nature, and were seen as central by reflective informants. Nevertheless, the projects commonly available at the two firms had differences regarding project's budget/scope, project's staffing, and project's output (see Table 1).

Table 1. summarizes the main similarities and differences between the two sample firms.

Table 1. Similarities and differences between Civeng and Metal R&D

ID	Similarities	Civeng	Metal R&D
S1	Number of participants (clients + consultants) in workshops typically between 10 and 30	X	X
S2	Both long (>1year) and short duration projects	X	X
S3	Multidisciplinary projects across business units	X	X
S4	Engineering design workshops routinely included in problem solving procedures	X	X
S5	High client interaction appreciated among consultants	X	X
S6	Workshops with creative output expected, and workshops where creativity was not expected	X	X
	Differences	Civeng	Metal R&D
D1	Mainly large budget (>1M€) projects	X	
D2	Mainly external consultants engaged	X	
D3	Mainly internal consultants engaged		X
D4	Mainly external clients	X	
D5	Mainly internal (corporate) clients		X
D6	Third parties often involved in the project besides consultants and clients	X	
D7	Main focus on product innovations and technology development		X
D8	Main focus on service innovations and development of project solutions	X	
D9	Mainly exposed to corporate directives		X
D10	Mainly exposed to public political processes	X	

The similarities between Civeng and Metal R&D (S1 to S6 in table 1) make it possible to consider both firms as comparable empirical contexts for the study of c-c-i practices, in particular as they are enacted during engineering workshops.

The differences between the firms make it possible to highlight contrasting patterns in the data about some of the constitutive elements of c-c-i practices, such as (see table 1);

- The kinds of consultants engaged (D2, D3). Internal consultants can be expected to share at least some of the corporate values, cultural background and ‘rules of the game (doxa)’ of their corporate clients. External consultants can be expected to bring a higher degree of cultural diversity into the interaction with their clients. This may contribute to variation in the actors’ perception of constraints (with implications for

their constraint-handling, see paper 1); their definition of value (which may affect value assessment, see paper 3); and their communication style and routines (which may affect the way communication structures change in their interaction with clients, see paper 4).

- The kinds of clients (D4, D5) and third parties involvement (D6). Differences in the kind of client (internal vs external) involved in the case contribute to variation in the same categories discussed in the section above concerning the consultants. In addition to that, external clients secure variation in the boundary conditions that impact the consultant's strategy formation work (see paper 4). The involvement of third parties (be it representatives of government, NGOs, private interests, or others) adds a third dimension to the client-consultant dyad. Third parties can be expected to bring in their own attitudes and expectations in terms of value creation (see paper 3), of novelty of the solutions (see paper 1 and 2), or of strategic importance of the project (for both client and consultant, see paper 4), which in turn may amplify the variation within all these categories, compared to cases with no third party involvement.
- The final goal of the project (D7, D8). The purpose of the client-consultant interaction is a fundamental component of the creative work (see paper 1 and 2). Variation in this category affects the development of the whole problem solving process including the perception of, and coping with, constraints (see paper 1), the perception of the value at stake in the work, and the assessment of final value created (see paper 3). It may also contribute to variation in the assessment of the strategic importance of the work; (short term incremental development of internal operational routines, see paper 3, vs. long term strategic challenge for the client and the consultant, in paper 4). This could in turn contribute variation in the actors' handling of the temporal dimension in strategizing (see paper 4).
- The boundary conditions for the client-consultant interaction (D1, D9, D10). Differences in the project budget (D1) induce variation in financial and technical constraints (useful for data analysis purposes in paper 1); and variation in the assessment of financial capital (essential element of data analysis in paper 3). Differences in the kind of policies and directives (D9, D10) the actors must follow may induce variation in the perception of administrative and organizational constraints (paper 1), and variation in the strategic scope of the projects (paper 3 and paper 4).

These variations in the core components of the practices under inquiry were thus used to strengthen inductive reasoning through constant comparisons (Strauss and Corbin 1990) in both single case analyses and cross case analyses.

Case selection strategy and procedures

A case study in this thesis is an engineering workshop, run within an engineering project. In other words, each case is an episode in which consultants interact with their clients and are engaged in clients' own value creation work (i.e., co-creation settings) (Grönroos, 2008). Both

Civeng and Metal offered a large number of projects, within engineering design, that could provide potential cases for this study. I needed cases which vary along the key theoretical dimensions specified earlier. To select the cases for further analysis, I knew that addressing c-c-i practices in these projects would entail gathering rich and complex sets of data. I needed data to operationalize the concept of practice. I had to grasp the logic behind practitioners' engagement in their practices, their stories, their attitudes in the present project, and their wishes for the future (Bourdieu & Wacquant, 1992). I also wanted to inquire into the implications of c-c-i practices for strategizing, and I needed data to set the projects in the larger context of the firm and its strategies.

Provided that projects are part of a whole set of business strategies, I also needed data that made it possible to put the case in the larger context of the firm's strategies. These data would have to include the project's topic, goal, budget, schedule, staffing, contracts and other administrative documents. They would also have to include the project's antecedents and informations about its strategic importance for the firm. In addition I would need to gather data on the individuals in the project teams. Other interesting data would include the firm's historical relations with the client as organization and the clients as single persons.

I had full access to all kind of written data about hundreds of projects, and I was in fact expected to gather much of these data as a normal part of my work as manager (Civeng)/consultant (Metal). The challenge was therefore to restrict my selection to those projects in which I estimated that c-c-i practices were most transparent and accessible (Pettigrew, 1990). Projects with co-creation characteristics (e.g. intense client-consultant interactions among others) were useful in this respect.

Both in Civeng and Metal new projects were continuously kicked off, and I was often asked to support them in the design and management of engineering design workshops. To select a Civeng project as a potential case for this study, I started by selecting those projects where the conditions for co-creation were in place. These were projects in which a team of consultants had been invited to co-operate with the clients on the client's own value creation process (Grönroos, 2008). I then reviewed the kinds and amount of data available about the project (e.g. corporate administrative databases, project banks, tender documentation). I established the project team composition (by looking at CVs in consultants' written offers, and through personal dialogue with project manager). I then asked (in emails, telephone conversations and personal meetings) whether any key participant would be interested in engaging in dialogues with me about their practices and in writing self-reflection reports for me. Finally I gathered information about the clients (by participating in preparatory meetings with client/project owner and by visiting the clients' web-sites). I paid particular attention to the client's expectations in terms of collaboration with consultants. The richer data I could get and the more positive key informants were to engage in a deeper and longer dialogue with me, the higher was the chance for the project to be selected. The cases were then chosen in an attempt to fill my theoretical categories (engineering field, problem-solving workshop, and co-

creation settings) and to provide examples of polar types relevant for the research questions in each paper.

The selection of cases from Metal, where I was an external consultant, followed the same procedure. The presence of project members who would volunteer as key informants weighted much more in this firm, because only through key informants could I get access to project data and Metal's corporate data.

8. Data collection

In this study, data is not something unquestionably there, ready to be collected. I have particular positions, experiences, theoretical preconceptions, interests and cultural baggage that influence what I see and call 'data' (Alvesson, 1995; Palmer, 1969). Moreover, data interpretation is to a large degree implicit, creative (Langley, 1999), and influenced by the unique context in which all interactions in the field take place (Pettigrew, Woodman, & Cameron, 2001). I have tried to be flexible and opportunistic in the use of data collection methods searching for triangulation of evidence, by using diverse kinds of data and data sources (Eisenhardt, 1989). Data sources and typology of data collected are presented in this section.

8.1 Engineering workshops as primary data source

In the sampling strategy section, the rationale is given for choosing engineering design workshops as a suitable context for researching c-c-i practices. From this choice follows opportunities to use this kind of episodes as a particularly suitable source of primary data on work practices. Participation in, and observation of, engineering workshops, stimulates the data collection activity to reach beyond the simple reconstruction of narratives from the informant's stock of experiences (Holstein & Gubrium, 1995). Workshops can provide primary data about the practitioner's various modes of engagement (practical, deliberate and detached). These data are essential to appreciate the different parts of practice that are revealed in each of these modes, and to bring them together as the tones in a composition (Barnard, 1938).

The engineering workshops I attended were parts of 'work packages' within larger engineering projects. The workshops were large meetings, used in addition to smaller meetings and individual efforts at the office, in order to focus the whole project team's attention on crucial issues (such as the definition of the project goal, creative generation of alternative solutions, and the final choice of the preferred solutions (Stabell & Fjeldstad 1998)). These workshops could cover one or several of these issues, and included sessions of

one or more days, depending on the issue at hand. Workshop participants included, with no exceptions, both clients and consultants.

Consultants often held internal preparation meetings before the workshops with the clients. Some meetings were just focused on preparing the team before meeting the client. Other meetings were used to design the workshop itself (content, scope, focus, desired output, schedule, participants). I participated or observed most of these preparation meetings, as part of my work.

I included in my data collection those meetings which provided data about the kind of c-c-i practices that consultants *expected* to enact (i.e., expressions of detached coping) in the workshops. My intention was to compare these data with data collected during the workshop, (i.e., what they *actually* did, or expressions of practical coping). Besides these notes, before entering the workshops I collected data about the formal hierarchical structures of the project, identifying key roles as the project owner (po), project manager (pm) and project team members (ptm), as found written in corporate project databases. I also recorded data about the informal hierarchical structures identifying opinion leaders, interest groups, social relations and networks among the project staff (triangulating these data through interviews and workshop observations).

In these workshops I normally had one of three possible roles (see table 2). I could be the Facilitator (F), a co-facilitator (CF) or an observer (O). As Facilitator I was external to the project with no interests or stakes in the project results. I gave advice to clients (po) and consultants (pm) on how to design the workshop (i.e., purpose, agenda, participants). During the workshops I helped individuals and groups to express their views and their ideas, and followed well known standards of excellence in facilitation (e.g. Broome & Kever, 1989; Galbraith, 1992; Justice & Jamieson, 2012) to avoid interfering with the group work. I helped the project teams to visualize their results and acknowledge any agreements or disagreements. As co-facilitator I had a merely consultative role in the design of the workshop, and I had a less prominent role in the workshop as I assisted a colleague in charge of the facilitation. As observer, I had no role in the workshop, besides being in the same room with the project group, observing the events and collecting data as non-participant.

Having each of these roles (only one at a time) made it possible for me to adopt different modes of engagement with the problem at hand, and to shed light on different practice-related data. Table 2 summarizes this aspects and table 3 provides an overview of which role was taken in which case.

Table 2. Researchers' modes of engagement and the idiosyncracies of different roles

Role	Particular mode of engagement and insight provided
Facilitator	I am engaged in practical coping together with practitioners. I am directly exposed to data (facilitator notes) about the immediate motives behind workshop design choices and practice management in each phase of the work.
Co-Facilitator	I am engaged in deliberate coping. Somebody else runs the show. I concentrate on unveiling temporary breakdowns and elicit data about the practices.
Observer	I am engaged in detached coping. I am out of the scene. I can record data about the practices and add immediate theoretical reflections and personal speculations.

It should be noted that as I held a manager position at Civeng and a consultant position at Metal, I was not seen as a researcher external to their work environment by the participants in any of these roles.

The total amount of cases studied in each firm (16 Civeng cases, 14 Metal R&D cases) depended on theoretical saturation (Corbin & Strauss, 1997). For each case I collected three kinds of data

- about the project (budget, schedule, contract, staffing, etc.) from corporate archives
- about the project's relation to the strategy of the business unit that run it, from corporate archives, interviews, focus groups and observations
- about the practices (see my definition of practice) from interviews, focus groups and observations.

Table 3, presents an overview of the cases selected and the data sources. Table 4 and table 6 provide additional details of the data collected, with reference to the data collection sequence and the consequent knowledge accumulation over time.

Table 3. workshop data sources

Firm	Case name	Topic of the project and engineering workshop	workshop data						My role	Key informants consultant (role)	Key informants client (role)	Interviews	Focus group - project team
			# days of workshop	# days of consultants only	# days with client	# Participants (client)	# days with consultants only	# days with client					
Cheng	RVE7	Local highway design	3		3	≈ 20 (10)		F	1 (pm)		1		
Cheng	E18M	Upgrading 20 km highway in a high traffic area	3		3	≈ 25 (10)		F	1 (pm)		1	1	
Cheng	HHUt	Strategic high-speed railway planning	3	2	1	21 (10)		CF	1 (pm)	1 (po)	2	1	
Cheng	NyOs	Design of Central Station buildings of the capital city	3	1	2	≈ 15 (5)		F			1		
Cheng	Metr	Design of regional light-rail/metro railway network	6		3	22 (18)		F	1 (pm)		1	1	
Cheng	NKSt	Design of a new railway station	2	1	1	24 (12)		CF		1 (po) 1 (ptm)	2		
Cheng	R456	Regional highway design through urban area	2	1	1	12 (4)		F	1 (pm)		1		
Cheng	ULRi	Tunnel design in railway planning in urban area	3		2	25 (12)		F					
Cheng	E39A	Regional highway planning	2	1	1	≈ 25 (15)		F					
Cheng	HAFs	Upgrading of a large hydropower plant	3	1	2	≈ 15 (6)		CF	1 (pm)		1		
Cheng	RV325	Local highway design	2	1	1	≈ 30 (20)		F	1 (pm)		1		
Cheng	HFOR	Energy solutions for hospital buildings	1		1	12 (5)		O					
Cheng	LYSe	Planning, regional electric power transportation infrastructure	1		1	≈ 10 (4)		O					
Cheng	UNDb	Planning for high school buildings	2	1	1	≈ 30 (25)		CF					
Cheng	AVIn	Environmental engineering design (for 45 airports)	3	1	2	12 (8)		F	1 (pm)		1		
Cheng	E18V	Highway planning across two regions	2		1	≈ 30 (15)		F		1 (po)	1		
Metal	CTL	Technology to upgrade manufacturing machines	2		1	≈ 10 (8)		CF	1 (pm)	1 (po)	2	1	
Metal	Cast	Casthouse technologies assessment	1		1	10 (6)		F	1 (pm)		1		
Metal	Weld 1	Welded tubes business development	2		1	≈ 10 (8)		F	1 (pm)	1 (po)	2		
Metal	Weld 2	Welded tubes technology development	2		1	12 (8)		F	1 (pm)		1		
Metal	RON	Recycling	2		2	7 (4)		F	1 (pm)	1 (ptm)	2		
Metal	Klum	Reduction of pollution/emissions during production	2		1	≈ 10 (8)		O	1 (pm)		1		
Metal	Topp	Metal production technology	1		1	≈ 10 (4)		O					
Metal	Bottom	Metal production technology	1		1	≈ 10 (5)		F	1 (pm)		1		
Metal	Tech Supp	Technical service support management	1	1	1	≈ 15 (12)		O	1 (pm)	1 (po)	2		
Metal	APCS	Strategic IT technology development in support of production	2		2	≈ 15 (12)		O	1 (pm)	1 (po)	1		
Metal	Financial	Improving financial reporting routines for the plant	1		1	≈ 10 (8)		CF					
Metal	Brilliant	Development of a new production technology platform	1		1	≈ 10 (7)		O	1 (pm)		1		
Metal	Focus	R&D strategy development (metal production)	2	1	1	6 (4)		O		1 (po)	1		
Metal	OdalL	Reduction of electrical energy consumption in the plant	1		1	≈ 10 (6)		O	1 (ptm)		1		
		Sum		12		42					28	4	

F = Facilitator
 CF = Co-Facilitator, we were 2 facilitators
 O= Observer, non participant
 pm = project manager
 po = project owner
 ptm = project team member

8.2 Data collection sequence and knowledge accumulation over time

The collection of data from engineering workshops was performed by following each workshop from its ideation, through its realization, and to the delivery of its results back to the main project. The phases that characterized this data collection, and their time, are reported in table 4.

Table 4. Data collection sequence and knowledge accumulation over time in engineering workshops

Time Span	Data collection Phase	Data collection activity	Data typology	Examples of data collected
Week 1	Learning about firm strategy	Searching in corporate databases	Strategy documents	Firm or BU strategy (periods 2008-11 and 2012-15)
Week 2 to week 3	Case/Project pre-scanning	Searching in corporate databases	Project's administrative documents	Project's goal, scope, budget, schedule, staffing (CVs), org. map, contract, etc.
		Informal dialogue with project's manager	Researcher's personal notes	Informal hierarchies, opinion leaders, technical challenges, attitude to collaboration and to creative work, implications for firm/BU strategy
		Informal dialogue with project's owner (client)	Researcher's personal notes	Client's goals and expectations; attitude to collaboration, and to creative work; opinion on project's implication for PSF's strategy
	Workshop preparation meetings	Observation or Participation (see table 3)	Researcher's personal notes; Meeting minutes	Workshop data (scope, purpose, duration, participants, planned output, technical challenges, etc.)
Week 4	Engineering design workshop	Observation or Participation (see table 3)	Researcher's personal notes; Video/Pictures, Documents of workshop's technical output	C-c-i practice descriptions (through participants' technical notes and drawings; utterances; use of tools).

Table 4. (continued)

Week 5 to week 6	Workshop follow-up meetings with consultants and/or clients	Observation or Participation (see table 3)	Researcher's personal notes; Documents of workshop's technical output; Project's technical documentation	Technical drawing on chosen solutions. Clients and/or consultants' estimates of created value. Manager's opinions on implications for BU's strategy
From week 7 and during up to 14 months after that	Case/Project's post hoc scanning	Interviews of workshop participants (key informants)	Researcher's personal notes; Audio recordings; Interview transcripts	Key informants opinions and post hoc descriptions of own practices, workshop results, and workshop's strategic implications
		Focus groups	Researcher's personal notes; Focus group minutes	The group's opinions and descriptions of own practices, workshop results, and workshop's strategic implications
	Reflections on c-c-i practices (run in parallel with the phases above)	In-depth dialogue with a selection of volunteers	Researcher's personal notes; Informant's personal notes	Volunteer's reflections on own c-c-i practice.

The sequence (from top to bottom) showed in table 4 is the most common one, but iterations and overlaps were not uncommon. For example, learning about the firm's strategy was done at the start by searching data in corporate databases. The firm's strategy was also a recurring theme in informal dialogues and interviews with key informants. Volunteers could be involved in several cases and their self-reflections could be related to more than one case at a time. As figure 2 shows, there have been periods with two or three workshops being performed at the same time (never on the same day though).

8.3 Strategy workshops as secondary data source

One of the purposes of this study was to learn about what implications do c-c-i practices have for strategy formation (see paper 4). In order to understand the relationship between c-c-i practices and strategizing, it was important to elicit data about the strategizing activities that were being performed during the study. These data had to be understood as part of the broader context of strategic developments of the firms and business units. For these purposes strategy documents were collected for the period 2008 – 2011 for the firms and the business units engaged in the projects and related workshops.

Early in 2011, Civeng kicked off a complete review of the firm’s strategy in order to establish a new corporate strategy for the period 2012-2015. As part of my job in the firm, I was asked to facilitate Civeng’s top management team throughout their strategy review. Changes at the corporate level prompted strategy reviews at lower levels too. This created the opportunity to address the phenomenon of strategizing in that firm, at all hierarchical levels. I first facilitated the top managers’ strategy revision of the firm (at the corporate level). Then, I facilitated the strategy revision of three divisions at the head quarter and that of three regional offices (see table 5).

Table 5. Data collection activities with management teams

Management teams	Strategy workshops	Focus groups	Key informants	Volunteers (personal dialog)	Informant's personal notes
Civeng Top Manag Team	3		1	1	
Civeng Environmental	2		1	1	1
Civeng Transportation	1		1		
Civeng Technical systems	1		1		
Civeng Region North	1		1	1	
Civeng Region West	2		1		
Civeng Region South	1		1	1	
Metal R&D upstream	1	2	4	1	
Metal R&D downstream	1	1	1		
Metal Business Sector Tubes		1		1	1
Co-creation program		3		1	
sum	13	7	12	7	2

From these strategy workshops I could collect the most accurate and complete data about the strategic stance of the firm (Civeng). These data could then be linked to single project cases in order to set each case in the firms’ strategic context.

Four of the Civeng managers I met in these workshops accepted to enter in a dialogue about the strategic significance of collaborating with clients in their specific markets, and one provided personal notes (see table 5).

At Metal, in 2012, I was asked to facilitate two similar strategy formation sessions for the firm’s R&D operations. I had no further access to Metal’s strategy work. Nevertheless, in 2011, I was engaged in helping Metal’s Head of R&D to sell the idea of having what they called a corporate “co-creation program” (to train “co-creation specialists”) to other business units (BU). This gave me the possibility of running seven focus groups (see table 6) with

several BU management teams discussing the topic: “co-creation, what is it, and what’s in it for us”? These focus groups provided me with data about these managers’ understanding of the co-creation concept, and their opinions on the expected added value deriving from client-consultant interactions in co-creation settings.

Data collection sequence and knowledge accumulation over time

The collection of data from strategy workshops was also performed following each workshop from its ideation, through its realization, and to the delivery of its results back to the management group. The phases that characterized this data collection, and their time, are reported in table 6.

Table 6. Data collection sequence and knowledge accumulation over time in strategy workshops

Time span	Data collection Phase	Data collection activity	Data typology	Examples of data collected
Week 1 To Week 2	Learning about firm strategy	Searching in corporate databases	Strategy documents	Firm or BU strategy (period 2008-11)
	Firm’s strategy background scanning (firm level, division level, business unit level)	Informal dialogue with business units’ managers	Researcher’s personal notes	Business units’ mission and goal for the next period, employment plans, key accounts and assignment preferences, etc.
		Informal dialogue with divisions’ managers (These persons were also part of the top management team)	Researcher’s personal notes	Manager’s expectations on the division’s contribution to the firm’s strategy formation and implementation
Week 3	Strategy workshop	Participation as facilitator	Researcher’s personal notes; Pictures; Documents of workshop’s output	Formal notes about firm’s / division’s/ business unit’s new strategic orientation (e.g. turnover targets, market preferences, competence development plans,...)

Table 6. (continued)

From week 4 and during several months after	Strategy workshop follow-up	Informal dialogue with key informants	Researcher's personal notes; Personal notes from one key informant (in each firm)	Manager's opinions on how the firm / division / business unit strategy was evolving.
		In-depth dialogue with a selection of volunteers	Researcher's personal notes;	Data about strategic implications of the cases in light of the results from the strategy workshop
From week 4 and during several months after		Focus groups (only at Metal)	Researcher's personal notes; Focus group minutes	The group's opinions about the strategic implications of establishing a co-creation program

The phase of learning about the former strategies had to be completed before entering the strategy development workshops. Contrary to what characterized the data collection sequence for engineering workshops, the sequence showed in table 6 above was strictly followed in each strategy workshop. All these workshops took place in 2011.

This meant that informal dialogues and interviews with key informants at Civeng in 2012 could be used to investigate the strategic orientations that had been emerging since 2011. Volunteers (four at Civeng in line manager positions) could also offer their reflections on how their experiences during engineering workshops had shaped their strategic attitude and preferences.

8.4 Additional sources of data

Focus groups

I used focus groups to address the interactive nature of c-c-i practices, and to gather data about the work group dimension of these practices. I wished to talk to the individuals that enacted these practices *as groups*, in addition to addressing them as single interviewees. I moderated the focus groups (Stewart, Shamdasani, & Rook, 2007). Questions were asked in an interactive group setting where participants were free to talk with other group members about their perceptions, opinions, beliefs, and attitudes towards the practice adopted in the workshop. In four cases (see table 3) the project manager accepted to invite a selection of project team members to participate in a focus group. In these focus groups I invited the group to review what they had done, as a group, during the three workshop phases of problem definition, generation of solutions, and choice of preferred solutions.

Interviews and dialogues with key informants

I used interviews with key informants chosen among the participants in the engineering workshops (see table 3) to follow up the data gathering, and analysis, from the workshops (Eisenhardt & Graebner, 2007). The 28 interviews (12 in Civeng, 16 in Metal) were semi-structured and conducted no more than two weeks after the workshop (see interview guide in appendix). During the interview I tried to touch four key issues; the strategic significance of their work; their self-reflection on their own practices in the three phases of the workshop (detached coping) (Tsoukas 2010); their understanding of added value coming from their c-c-i practices; and their insights on standards of excellence that apply to these practices (Sandberg and Tsoukas 2011).

Besides the interviews with workshop participants, I had the possibility of engaging in deep and long dialogues with 20 consultants (9 at Civeng, 11 at Metal) (see table 7). These individuals were all experienced professionals who had been internally headhunted to participate in an 18 months long training program (called Innovation Program at Civeng and Co-Creation Program at Metal) aimed at developing their skills as designers and facilitators of creative problem solving in projects. The Metal program defined co-creation as *the ensemble of practices (including knowledge, attitudes, and tools) consultants draw upon when collaborating with their clients in the three phases of problem solving* (this is consistent with Grönroos' (2008) definition). I was the trainer responsible for the program at Metal, and the head of the business unit responsible for the same program at Civeng. This dialogue was based on consultants' self-reflection on their c-c-i practices. The dialogue took form as both formal, semi-structured and open-ended one-on-one interviews, and numerous informal one-on-one conversations. The topic of our dialogue was the experiences that they had had with designing, facilitating and reporting (real-life) in engineering workshops (i.e., c-c-i practices) during the training program. I witnessed as a non-participant observer a few of these workshops (see 'O' marked workshops in table 3).

Table 7. Practitioners who volunteered for personal dialogue

Firm	Nick name	Position	# workshops (*)	period of dialog	provided personal notes
Civeng	Francy	project manager	6	oct 2010 - dec 2012	yes
Civeng	Lina	project manager	9	oct 2010 - dec 2012	yes
Civeng	Ove	project manager	6	oct 2010 - dec 2012	no
Civeng	Stig	BU manager	9	oct 2010 - dec 2012	no
Civeng	Ellen	project manager	9	oct 2010 - dec 2012	yes
Civeng	Lorentzo	IT manager	9	oct 2010 - dec 2012	no
Civeng	Egil	project manager	7	oct 2010 - dec 2012	yes
Civeng	FruG	BU manager	5	jan 2010 - dec 2012	no
Civeng	Eronnes	BU manager	5	jan 2012 - dec 2012	yes
Metal	Paul	project manager	6	sept 2011 - dec 2012	yes
Metal	Omar	BU manager	6	sept 2011 - dec 2012	yes
Metal	Drunar	project manager	4	sept 2011 - dec 2012	no
Metal	Dirk	project manager	9	sept 2011 - mar 2013	no
Metal	Terry	BU manager	9	sept 2011 - mar 2013	yes
Metal	Glen	project manager	9	sept 2011 - mar 2013	yes
Metal	Kristin	project manager	9	sept 2011 - dec 2012	no
Metal	Hege	project manager	9	sept 2011 - dec 2012	yes
Metal	Inga	project manager	7	sept 2011 - dec 2012	no
Metal	Oarne	BU manager	7	sept 2011 - dec 2012	yes
Metal	Tom	sales manager	2	sept 2011 - dec 2012	no

(*) # workshops object of self reflection and post-hoc dialog, including workshops I did not observe

As part of their training assignments, all trainees had to report their experiences in writing to the trainers, who, upon agreement with the trainees, disclosed the documents to me too. These were trainees' confidential, but not private, technical notes on their workshop design choices and management of group dynamics. In addition, five of the trainees from Civeng and six from Metal, volunteered to write and share directly with me their personal notes about their own experiences with c-c-i practices.

As a part of their training program, these consultants had to perform focus groups to stimulate learning from each other. I participated, as an observer, in a few of these focus groups which were moderated by other colleagues of mine (see table 8).

Table 8. Focus groups on c-c-i practices (with volunteers from Co-creation programs)

Firm	2010	2011	2012
Civeng	1	2	1
Metal		2	2

These focus groups and the personal dialogue with these twenty consultants, that took place over several months, provided me with additional insights into the technical, social, and political sides of the practices we discussed.

8.5 Time and timing of the data collection

Time and timing have been essential aspects of the data collection. Civeng’s corporate strategy revision was run during the second year of this study. This event contributed to shape the data collection, providing opportunities to study strategizing in real time. Much of the data on c-c-i practices have been elicited through dialogues over time with volunteers, who needed that time to mature their insights and opinions.

This study has combined retrospective data collection with longitudinal ‘real time’ data, see figure 1. The rationale for this approach is twofold. To grasp the logic of c-c-i practices requires collection of real time data to shed light on the unfolding of the practice as it happens (Schatzki, 2006). Secondly, to grasp the whole context in which these practices are embedded requires that the practice’s roots in events and routines of the past be acknowledged and elicited. Retrospective data collection is used to secure the historical perspective necessary to provide a backdrop to the individual’s habits and strategic attitudes that are expressed in real time.

I have combined longitudinal real-time data collected during the entire lifecycle of the chosen projects, with retrospective data collection going back in time as far as necessary to identify the strategic decisions that originated those projects.

Figure 1 summarizes my engagement in the field and the events that most influenced the emergence and the development of this study. Figure 2 provides an overview of the timing of the cases included in this study.

Figure 1. Time scheme for the inquiry in the two firms

Figure 1. Time scheme for the inquiry in the two firms

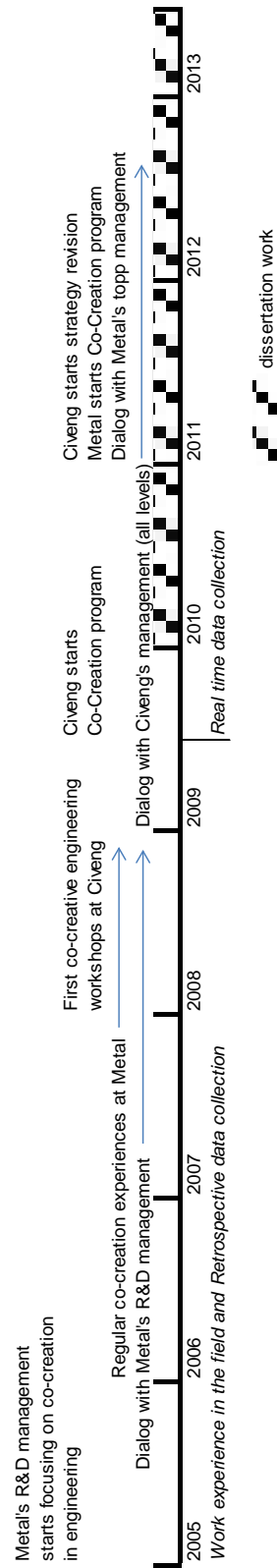
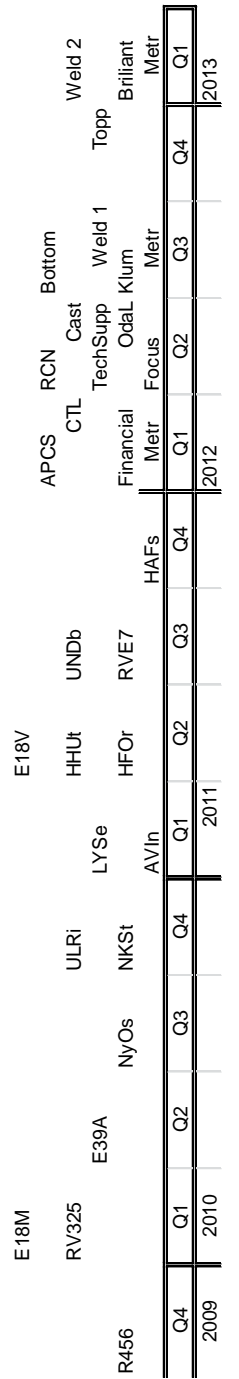


Figure 2. Timing of the cases included in this study

Figure 2. Timing of the cases included in this study



The way time data have been used to grasp the logic of c-c-i practices is explained in the data analysis section.

9. Data analysis

The data analysis partly overlapped the data collection (Eisenhardt, 1989), and it was a process of continuous discovery and endless questioning, swinging from data to theory and back. The strategies I found most useful for detecting patterns in data, developing theoretical categories, and building theory, were in part borrowed from classic methodology literature (Langley, 1999). But it was also clearly influenced by the practice theoretical approach (Sandberg & Tsoukas, 2011; Splitter & Seidl, 2011) of this study. The following sections present each of the theoretical elements that characterize this practice-oriented approach, with particular emphasis on how the theoretical elements have been included in the data analysis.

9.1 C-c-i practices analyzed

What I want to explain (my level of analysis) is the engagement of practitioners in c-c-i practices. The unit of analysis is the c-c-i practices. I defined practice as “a routinized type of behavior which consists of several elements, interconnected to one another including forms of bodily activities, forms of mental activities, ‘things’ and their use, practitioners’ know-how, and even their observable states of emotion (Reckwitz, 2002, p.249).

Through this definition I can use a richer set of data to operationalize and analyze the concept of practice. Table 9 presents the essential set of data used for that purpose.

Table 9. Data used to operationalize 'practice'

		Components of practice as unit of analysis			
		Bodily activities	Things /use of	Knowledge /expressions of	Emotional state
Primary data items	Actors' utterances	X		X	X
	Actors' written notes		X	X	X
	Technical drawings and sketches		X	X	
	Tools used	X	X		

Despite the apparent rational structure of the data, organized as shown in table 9, this definition cannot be considered a mechanistic one. On the contrary, it entails a deeper exploration of the relational, embodied and temporal nature of practice. The rationale behind this operationalization of the concept of practice is the necessity to explore these three fundamental features of practice (e.g. Bourdieu 1990, Dreyfus 1991, Schatzki et al. 2001), and

to overcome the overwhelming nature of the ambiguous, dynamic data that characterize it, by fixing attention on some anchor points.

9.2 Revealing the logic of c-c-i practices

Awareness of the three modes of engagement with practice (absorbed, deliberate and detached coping) is a crucial element of the data analysis in this study. This is considered essential to grasp the logic of c-c-i practices (Dreyfus, 1991; Sandberg & Tsoukas, 2011; Tsoukas, 2010).

As I want to explore c-c-i practices, the unit of analysis has to be the sociomaterial practice under scrutiny. We have seen that this is a complex entity and that this entity is made available to the researcher through observable routinized types of behavior (of practitioners who *embody* the practice). This unit of analysis is operationalized through a set of elements including forms of bodily activities, forms of mental activities, ‘things’ and their use, practitioners’ know-how, and even their observable states of emotion (Reckwitz, 2002, p.249).

The reason for including all these elements is that they altogether provide the background against which absorbed coping action is undertaken. The absorbed coping mode cannot be grasped from the point of view of a researcher positioned outside the practice (as co-facilitator or observer). Yet, through the choice of an adequate unit of analysis, the research design can acknowledge adsorbed coping, and prepare to appreciate those parts of the adsorbed coping that may become intelligible to the researcher who observes or partakes in the practice.

As stated earlier, the level of analysis is the practitioners’ engagement in c-c-i practices. The analytical work aims to unveil the essence of such engagement. I follow Sandberg and Tsoukas (2011) who propose two data (collection and) analysis strategies, particularly suitable to grasp the logic of practice when used *together*: searching for entwinement and searching for breakdowns. Besides these two very specialized strategies, I support the data analysis through other strategies such as the use of narratives, visual mapping, and temporal bracketing (Langley 1999). All these data analysis strategies are explained in the next sections.

First data analysis strategy: searching for entwinement.

Rather than analyzing single activities to be aggregated later on, I tried to be sensible to and analyze the *relational whole* of the given c-c-i practices. As described in the literature (Sandberg and Tsoukas, 2011), a [c-c-i] practice forms a relational totality of significance consisting of elements, such as those presented in table 10.

Table 10. Elements through which work practices forms a relational totality of significance

I – Teleological structure	A particular teleological structure that orients the practitioners towards specific ends (i.e., enhancing the value creation)
II – Pregiven assumptions	Pre-given assumptions about what matters in the value creation process, what is proper behavior and what is not, which provides agents with a particular orientation and identity
III – Standards of excellence	Standards of excellence or best practices that function as points of reference for managers;
IV – Specific activities	Particular activities such as planning, interacting with clients, engineering, and so forth;
V – Specific tools	Particular engineering tools, such as textbooks, reports, software, and similar tools

I focused on how activities are accomplished by practitioners through the use of their bodies, and the use of their tools. I tried to discover patterns of sociality, tool use, and empowerment. These analyses, more than providing thick descriptions of work routines, aim to reveal the *sense* in which the given c-c-i practice is enacted and what actually matters for the practitioners.

To approach the entwinement of different practice elements and to appreciate their relational totality, I have integrated the data collected to operationalize the concept of practice (table 9) with data about each of the five elements mentioned above (table 10).

The subsequent data analysis has proceeded as follows, from first order data to definition of the practice:

Table 11. Analytical progression towards the identification of practice in its relational totality
(example from case HHUt in paper 1)

Practice element (from Sandberg & Tsoukas, 2011)	First order data	Second order construct	Third order: relational totality
I) Teleological structure	Interviews and observations	Specific ends: <i>e.g. value through optimal high speed railway design</i>	C-c-i practice: <i>e.g. protesting (as input to creative design)</i>
II) Pre-given assumptions	Interviews / dialogue focus groups	What matters: <i>e.g. novel high speed design</i> Proper behavior: <i>e.g. be loyal to high speed technical requirements and challenge the client's scope</i>	
III) Standards of excellence or best practices	Corporate data, best practice descriptions	Points of reference: <i>e.g. railway design solutions adopted in country X</i>	
IV) Particular activities	(data from table 9)	Patterns: <i>e.g. sketching railway lines in large maps, interacting with clients, engineering</i>	
V) Tools	(data from table 9) textbooks, reports, software	Typical tools: <i>e.g. maps, CAD sw, pictures, reports</i>	

In the analyses a second order construct did look like this for one practice discovered at Civeng (case HHUt):

“We want to deliver the best possible service and to maximize value creation through optimal high speed design [basic teleological structure]; we need to access client’s assets and interests, the client does not push for high speed [assumption 1]; we believe in co-operation with the client and invite them to a workshop [assumption 2]; just like we did in our success story project X [best practice]; where we used the collaborative method Y in our engineering workshop in September 2011 [particular tool/activity].”

The five elements in table 10 were used to guide observations, collect and analyze data, and connect them to build these second order constructs. To confirm the validity of most of these constructs, I presented them to key informants, either in formal interviews or in informal conversations at work.

Second data analysis strategy: searching for breakdowns

We know that practitioners’ primary mode of engagement in a sociomaterial practice is absorbed coping, dealing with the world non-deliberately. In this mode it is difficult for the researcher, and even for the practitioner, to penetrate the essence of the practice. Breakdowns are windows that open into the inner parts of a practice. Breakdowns are episodes in which practitioners’ absorbed coping is significantly disrupted, so that they shift to one of the two other coping modes (deliberate or detached). It is when the practitioner is in these coping modes that the logic of their practices may become manifest to him- or herself and to the researcher (Tsoukas 2010).

When the disruption is a *temporary* breakdown (e.g. small problems arising during a training session) practitioners shift from absorbed coping to involved thematic deliberation, or deliberate mode: their relational whole (i.e., all the components of their practice and their mutual relations) comes into view and they pay deliberate attention to what they do, while still remaining practically involved in the task at hand. During episodes of involved thematic deliberation, the logic of practice (i.e., what is done, how and why) momentarily becomes manifest and illuminated, because the practitioner has to pay attention to the components of the practice and to their relations. I, as researcher, tried to catch this knowledge, by being in place and observing these episodes (as non-participant co-facilitator or observer).

Figure 3. Analytical procedure - temporary breakdowns

Temporary breakdowns -> deliberate reflection while engaged in the practice -> practice element unveiled

For example, in paper 3 (case CTL)

Temporary breakdown	Reflection (on the run)	Practice element
The engineering workshop is set to start as planned. Two managers disagree on the O.E.E. definition, and refuse to start.	MD needs to rethink the O.E.E. definition, and to react to the protest from the two managers.	(Teleological element) The goal of the problem-solving work should be agreed upon with those whose input is needed.

Another example can be found in paper 4 that shows a particular case where c-c-i practices overlap with strategizing practices

Temporary breakdown	Reflection (on the run)	Practice element
The workshop is planned and about to start. The client asks for last-minutes changes in the workshop purpose and design, in order to highlight even more the importance of strategic railway planning.	In light of the client's strategic preferences, the BU manager has to review the whole workshop set up, the planned deliverables, and the strategic relationship between workshop results and the project.	(Teleological element) BU manager defines <i>strategic railway planning</i> as a new strategic area for his BU. (Tools element) Use of group work techniques and planning tools appropriate to address the topic chosen.

When the disruption is more definitive and takes the form of a *complete* breakdown (e.g. a group work session that, for any reason, has to be interrupted and postponed), practitioners become completely disengaged from the sociomaterial practice and can switch to theoretical detachment. Through such a change in the mode of engagement, the entwined logic of practice becomes concealed and, instead, the researcher can analyze practice as it presents itself in the descriptions given by the informants, as a story line, as an array of discrete entities with specific abstract properties.

These are narrative data, post-hoc rationalizations of the practice. These data, *put together with* the data collected during temporary breakdowns, contribute to a more complete description of the c-c-i practice and of the practical logic behind it.

For example, in paper 3 (case CTL)

Complete breakdown	Reflection (detached)	Practice elements
CTL workshop is over. Interview one day after the problem solving phase in the workshop of the CTL case.	Thinking of and answering questions about the reasons why the workshop technical goal was set that high (85% O.E.E.).	(teleological element) Managing director wants to stretch the goal as much as possible (pre-given assumptions) We must aim at state of the art solutions and technology

Another example from paper 1 (case HHu)

Complete breakdown	Reflection (detached)	Practice element
Preparatory meeting is over. Conversation immediately after the preparatory meeting of the HHu case.	Thinking of and answering questions about the reasons why the workshop agenda was changed.	(disruptive element) Sabotaging as shattering practice

9.3 Additional data analysis strategies

C-c-i practices are enacted within the sociomaterial context of the engineering workshop and within a given project, and within the strategic context of the firms.

In order to unveil and understand the entwinement between these contexts and the development and enactment of the c-c-i practices, I matched the results from the two data analysis strategies presented above, with the following additional strategies (Langley 1999).

Narratives

This strategy involved the construction of detailed stories from raw data (archival, observations, and interviews) (Griffin, 1993). I wrote two main kinds of stories. The first was the story of the projects that had provided me with cases. The aim of this was to get additional insight on the five elements of practice's relational totality (Sandberg & Tsoukas 2011) from the analysis of the broader project context. Table 12 exemplifies this analysis step in one case, used in two papers.

Table 12. Use of narratives in the analysis of practice relational totality

Practice element (from Sandberg and Tsoukas, 2011)	Narrative elements from the story of the project used in the analysis of the practice	Example from paper 1 and paper 4 C-c-i practice in HHu
I) Teleological structure	The project's strategic aim and its goals (technical, financial, political, organizational). The ambitions of project owners and project managers, and, when relevant, third parties (including notes on potential conflicts of interest).	The history about the decision to establish a new national high-speed railway development infrastructure, and the following project kick-off. The ambitions of the (client) NRA, the goals of the consultants, the conflicting interests of local communities.

Table 12. (continued)

II) Pre-given assumptions	What project owner, project manager and project team members took for granted (contracts, HSE, budgets, schedules, personal relations, utterances in the media, existing solutions/technologies)	Conflicting assumptions about high-speed railway and InterCity-like solutions. Consultants assumed that only high-speed deserved attention. Clients assumed that InterCity required political attention.
III) Standards of excellence or best practices	Lists of the technical and contractual standards adopted in the project. Descriptions (formal and informal) of best practices when available.	A whole set of standards to prevent environmental hazards. Best practice from other countries where high-speed was fully developed.
IV) Particular activities	Main activities as scheduled and described in the project plan.	Contract meetings, preparation meetings, the workshop itself as described in paper A.
V) Tools	Engineering tools, planning tools, strategy development tools. Methodologies used.	The story of why large-scale maps were chosen. The tools used to plan high speed railway.

The second kind of story was about how the strategies of various business units had developed and were developing, while the project cases were running. To develop these narratives, I used data from corporate databases. For Civeng I could cover the overall strategic development for the 2008-2011 period (corporate and divisions) through strategy documents from corporate databases, and for the 2012-2015 period from their strategy workshops (see table 5). For Metal R&D, I had data from corporate databases about the period 2010-2012, while I had to rely on interviews for data about strategy development in the period 2005-2010. This second kind of narratives provided the opportunity to analyze the strategic goals of the single projects and to relate these goals to the subordinate goals of the c-c-i practices under scrutiny (see for example the single case described in paper 4).

Visual mapping

Practice data are rich, vivid, dynamic, complex, and, in this study, they came in large quantities. Visual mapping was a useful strategy to present such large quantities of practice-related information in relatively little space. This method is not suitable to catch the emotional and cognitive elements of practice. Nevertheless, what I lost in terms of depth, I gained in

terms of data reduction and synthesis. Visual mapping was in fact a useful analytical tool to synthesize the interpretations of practice data. This type of drawing is an intermediary step between the raw data and a more abstract conceptualization of practice. To move toward a more general understanding, I did compare several such representations to look for common sequences of events and action patterns (Langley & Truax, 1994).

I used maps to visualize the phases of the workshops (in particular the problem solving part) in each of my cases. See the detailed description in paper 2.

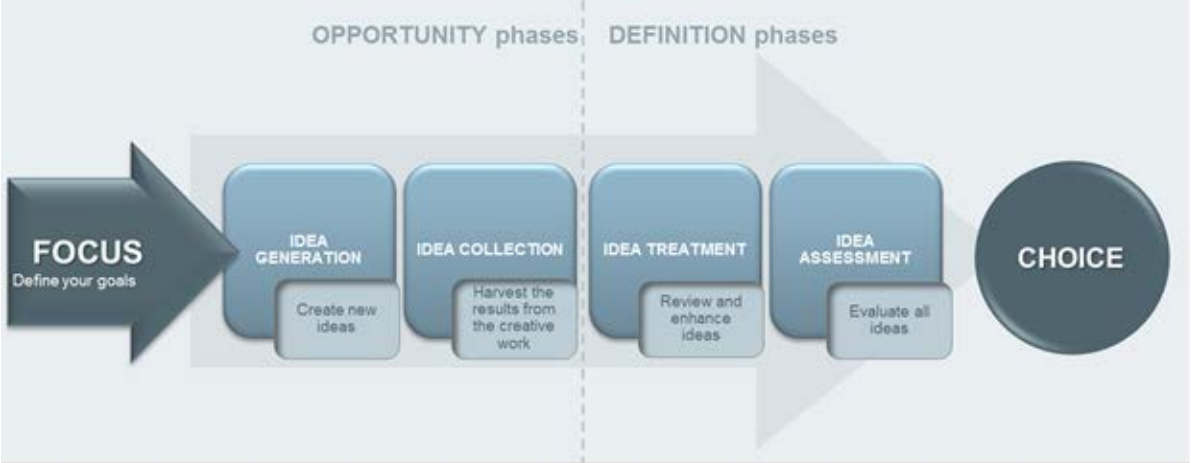


Figure 4. Example from cases in paper 2.

I also used visualization as a way of recording all the engineering solutions produced in all cases. This was possible because it was routinely required in the production of the alternative engineering solutions, and it was useful to grasp the technical aspects of c-c-i practices.



Figure 5. Example from case 1 in paper 3

Finally I used visualization techniques to illustrate patterns in client-consultant interaction (in subgroups during the workshop). For example, visualizing the subgroup work phases during and subsequent to the launch of an idea during workshops, I derived the four types of shattering practices in paper 1.

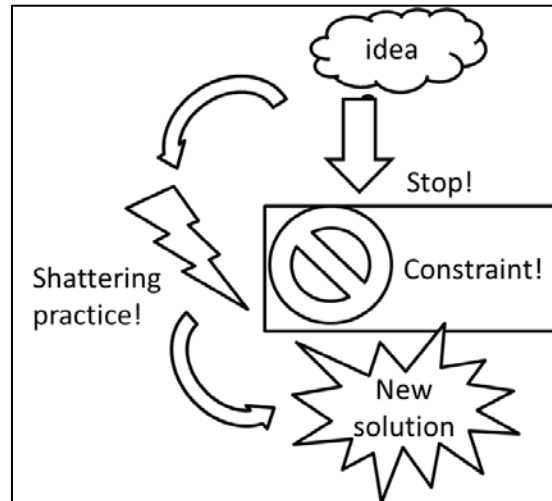


Figure 6. Example: Visualization of the concept of constraint shattering in group work. (paper 1)

Using this kind of technique was an exceptionally efficient communication tool in the dialogue with my key informants. I used it to present my ideas to them, to steer semistructured interviews and verify my interpretations of their practices with them.

9.4 The time dimension in the data analysis

The logic of entwinement that characterizes the analytical approach of this study requires an effort to understand the temporal dimension as part of the practice.

The data analysis takes into account the temporal dimension of c-c-i practices approaching it from three points of view that follow directly from the operational definition of practice (see table 9):

1) Practice correctness and constancy over time. This is related to practitioner's bodily activities and emotional state. Enacting the same practice over time, a practitioner embodies a sum of experiences that contributes to shape his or her practice. Building on the past, a given practice takes forms that tend to become constant over time (Bourdieu, 1990, p.54). The analysis here was focused on practices' *correctness* and *constancy over time*, as two tools to unveil c-c-i practices. I operationalized this search through the analysis of repeating patterns of action (using data from table 9 and from case narratives). This was done by analyzing the actions of the same practitioners *during* the three phases of problem definition, generation of solutions, and solutions assessment in a single case. I then ran comparative analyses between pairs of cases where the *same practitioners* engaged in subsequent workshops. The case pairs

were ‘Weld 1 and Weld 2’, ‘NKSt and HHUt’, ‘E18M and E39A’, ‘ULRi and RV7’, ‘Financial and CTL’, ‘Metr in 2012 twice and once in 2013’, ‘Focus and Bottom’, ‘Cast and Topp’ (see table 3 and figure 2). I also analyzed patterns of action across the pairs of cases.

2) Time as a thing, and its use. The analysis here was focused on understanding time as a *feature* in c-c-i practices. Data from field observations and narratives were used for this purpose. I tried to be sensible to the temporal dimension in the data, and analyzed how practitioners *used time* and *timing as tools* in their workshop *design* practices. Being sensible to the temporal dimension included, for example, noticing how they decided the time horizon of the project goals, the planned duration and schedules of the workshops, and the timing of the implementation of chosen solutions, with respect to the project phase/schedule.

3) Anticipation and expressions of know-how. This is connected to the teleological aspect of the practice (Chia & Holt, 2006; Joas, 1996). The analytical effort consisted here in appreciating how practitioners read the *present* situation, decide their next moves *anticipating possible future* states of the situation, and act, pulling the action that they consider most opportune to handle the situation at hand, from their stock of *past* experiences. This analysis had to combine three data sources: historical data about personal background (CVs, long term personal conversations); real time observations of situations and actions in the workshops (absorbed coping); and interviews and/or focus groups where informants were asked to reconstruct the situation and their reactions. This combination of data could only be completed in the cases in which practitioners volunteered to participate in personal dialogue (see table 7).

The results from these three different analyses were then combined to appreciate the temporal dimension of c-c-i practices.

For example, in paper 3 the analysis of the temporal aspect of practice revealed that practices aimed at providing or denying access to capital were much less time-consuming than practices aimed at capital exploitation. Practitioners *used time* and *timing as tools* to enact the practices the best suited their personal value creation goals (teleological aspect). Once their move was done (e.g. enabling transformation of know-how into allocation of financial resources) they could decide their next moves *anticipating possible future* states of the situation. Practices of providing access or practices of enabling capital exploitation were also discovered as practices that tend to have features that remain *constant over time*, such as the motivation (teleology), and the propensity to negotiation (typical activities).

The purpose of this analysis was to discover and explain *time* as a constitutive element of the practice itself. In this sense, the purpose of analyzing the longitudinal data in this study differs from that of the classic analytical models that characterize process-oriented research (Pettigrew, 1990) and change management research (Pye & Pettigrew, 2006). In other words,

rather than addressing the change of a given practice-construct over time, this analytical effort is meant to use temporality as a tool to understand the logic of c-c-i practices.

9.5 Within-case and cross-case analyses

The data analysis strategies presented above were mainly used to carry out within-case analyses. The idea was to grasp the logic of the specific practices that had been enacted in specific cases. The results from these analyses were then used to inform cross-case analyses in three of the four papers (paper 4 is a single case study). Depending on the research question and the theoretical categories applied in each paper, I used different cross-case analysis tactics. In paper 1 (on shattering practices) the basic approach was to select pairs of cases and then to list the similarities and differences between each pair. In paper 3 (on the assessment of value created) the tactic was to compare data on the same categories (capital forms) but from different data sources (interviews, observations, project databases). Finally, in paper 2 (on the creative practices in successful engineering workshops), I first divided the cases into two groups (successful vs. not successful), then selected the creative action dimension and its theoretical categories (focus, constraint, shattering, reaction), and then looked for within-group similarities coupled with intergroup differences.

The idea behind these cross-case searching tactics was to go beyond initial impressions, especially through the use of structured and diverse lenses on the data (Eisenhardt 1989, p.541).

10. Overall limitations and challenges of my research design

The design used in this study implies that the search for in-depth understanding of the c-c-i practices, is achieved at the cost of simplicity and generality (Langley, 1999).

This in-depth understanding may come from voluminous data and vivid thick descriptions of the c-c-i practices. The theory developed using this kind of data is descriptive of the phenomenon, but it is not a theory about organization in any grand sense (Eisenhardt, 1989, p. 547).

In my effort to grasp the logic of c-c-i practices I have to acknowledge that our entwinement with the world is ontologically prior to the epistemological relation between a subject and an object. It is only through our engagement in particular sociomaterial practices that we are able to understand ourselves as particular subjects, and understand objects as particular things to be studied. This argument has concrete consequences in terms of limitations of my research design.

The choices of the unit of analysis (the c-c-i practices), and of the level of analysis (the practitioners' engagement with their c-c-i practices), are both consequences of the epistemology imposed by my theoretical approach. These choices entail three fundamental types of limitations and challenges that I face, as a practice-minded management researcher.

The first type is that of empirical operationalization of the unit of analysis; that is to define the concept of practice so as to make it clearly distinguishable or measurable. Any theoretical effort to model the complexity of practice is bound to be limited by the set of categories that are chosen to create the theoretical model. My attempt to define and operationalize the concept of practice is no exception.

The second type is related to the need of designing data collection in order to *be there*, and dive into practice data, whenever the normal and transparent flow of action is broken. This kind of data collection is very time-consuming because it requires insight into the work processes under study. This insight is achieved only by spending much time with the practitioners. The data analysis is affected by the risk to misinterpret the natural workflow and to see temporary breakdowns where there are no breakdowns.

The choice of assuming various roles (facilitator, co-facilitator, observer) in the cases, trying to approach the diverse aspect of c-c-i practices, was a way of counterbalancing this weakness. Still, each of these roles presented disadvantages and risks.

Table 13. Disadvantages and risks of taking diverse roles in the cases

Role	Opportunities sought	Risks and disadvantages
Facilitator	First-hand participation in the practice itself. Feel its corporeality and its temporality.	Practical coping along with the practitioners. Cannot break out of the practice. Focus on the particular task at hand, at any time. No overview of the practice.
Co-Facilitator	Study the practice from within, but without being fully engaged in it. Being able to focus on single issues and at the same time pursue an overall view of the practice as it unfolds.	Deliberate coping. Risk to be brought in as facilitator. Easy to be attracted by certain temporary breakdowns and lose the overall view of the practice.
Observer	Study the practice from the outside. Classical method.	Detached coping. External observations are subject to personal biases and do only reproduce a theoretical account of the practice, which is per definition far from the logic of the practice itself.

The third type is related to designing data analysis in order to account for the holistic and relational nature of the practices under inquiry. No matter how detailed and attentive the analysis of practice-data is, there are aspects of practice, (e.g. its corporeality, its fuzziness) that simply cannot be fully conveyed by theoretical accounts (Bourdieu & Wacquant, 1992). Much of this third challenge is related to my background and dispositions as practice researcher. This point is given particular attention in what follows.

10.1 Limitations due to my position as industrial PhD candidate – participant objectivation

In the period 2009-13, I was employed as ‘Head of Innovation’ at Civeng, being responsible for all corporate activities in support of innovation in engineering projects. Furthermore, I have served Metal’s R&D division and several of Metal’s production plants, regularly, as an external consultant since 2005. Until 2010, I was engaged as workshop facilitator in shorter engineering design assignments. From 2011 to 2013, I served Metal as coordinator and trainer for a global on-the-job training program, called co-creation program, focusing on innovation management in multidisciplinary projects. Eleven managers attended this program at Metal. As an industrial PhD, I was granted unrestricted access to corporate and project data in both companies. As a middle manager (for Civeng) and trusted advisor (for Metal), I had the privilege of enjoying unrestricted access to project managers, business unit managers and many top managers, in both companies, before and throughout the period of this study.

For managers, providing access is often a matter of trust in the researcher’s sensemaking skills and a question of whether it is worthwhile to allocate time to talk to him/her about sensitive, complex, or even personal, issues. In my case, even if it was known that I was engaged in a PhD dissertation, I believe my clients and colleagues did not see me as a researcher, but as one of them, routinely working on projects, just as I used to do before. One may object to such an access strategy that I could be blind to the phenomenon I wanted to study. Such a critique can, and indeed should, be used to help address the risks that I, as any practice-based scholar, meet in such a research endeavor. Two risks in particular. The first is the risk to *be unaware* of my “scholastic view” of the phenomenon I study. This would lead me to ignore the limits of my perception of the phenomenon. The lack of such awareness, which Bourdieu (1988) called “epistemic doxa”, leads to another related fallacy, “scholastic ethnocentrism” (Bourdieu, 1988), which consists in the projection of my scholastic view, and logic, into the object of my research. In order to avoid these fallacies, I try to develop a particular kind of reflexivity by engaging in what is known as “participant objectivation” (Bourdieu, 1978).

Participant objectivation consists in objectivizing my own subjective relation to my object of research, and including such a relation in the research method. This effort goes beyond self-reference or self-consciousness. It is not merely about reflecting about my fieldwork either.

My participant objectivation effort consists in conducting a critical analysis of my own relation to c-c-i practices (Bourdieu, 2003; Golsorkhi, Leca, Lounsbury, & Ramirez, 2009) with the same rigor as the one applied in the rest of the data analysis. This objectivation of my subjective relation to my object of research is performed in accordance to the precepts of practice theorists (e.g. Splitter & Seidl, 2011; Wacquant, 2006) through two analytical steps. The first is concerned with the analysis of the objective structures of the scientific field in which this study is positioned. These are not easy to define univocally. I took suggestions from Bourdieu (2003, p.283) and considered at least the following (see table 14).

Table 14. Objective structures of my scientific field, that might influence data collection and analysis

What are the local traditions and peculiarities of the field? (seminal works, streams of literature, journal rankings, etc.)
What are the habits of thought?
What are the shared beliefs and commonplaces? (in general and with respect to the specific research question at hand)
What are the shared values?
What are the rituals?
What are the constraints in matters of publication of findings? (co-authorship traditions, paper development preferred procedures, etc.)
Does the field have specific censorships?
What are the presuppositions built into the categories of scholarly understanding?

The list of questions in table 14 is not exhaustive. Yet it was enough to question my own awareness of the structures of my scholastic field. I could more easily spot (and record in my notes) the issues raised in these questions during the first two years of my doctoral study, when I still filtered most of the inputs of this “new to me” world, through the eyes of the practitioner.

Later on, being necessarily more adapted to the orthodoxy of the scientific field, I used the list above as a checklist at the beginning and towards the end of the data analysis of each paper. Furthermore, I invited my co-supervisor (from Metal) and a team of volunteers (read more about volunteers and focus groups in previous sections) to use the list in order to be critical with respect to whatever they imagined could be an expression of me being caught in the logic of my scholastic field.

The second analytical step is concerned with unveiling my individual dispositions towards the practices I study (Deetz, 1996). I used the questions in table 15 as a checklist, and I adopted the same procedure, used in the first step, to get through the list on my own and with my informants/volunteers.

Table 15. My individual dispositions

Am I influenced by; my gender (projecting masculine aspects into the phenomenon?), my nationality, my education? If so, how and why?
What are my habits of thought?
What are my experiences as practitioner with the practices I study?
What are my expectations and my hope as a practitioner in this specific case? And why?
What are my beliefs and preferences? (in general and with respect to the specific research question at hand)
What are the values I tend to recognize and promote? And why?
What are my expectations as participant in the scientific field? And why?
Do my expectations as a practitioner contradict my expectations as a researcher? How? Why?
Do the constraints in matters of publication of findings influence my analysis and presentation of the results?

The answers were then used to finalize the design of my analyses and the presentation of my results. This is presented in detail in the following sections.

Finally, participant objectivation requires “methodological polytheism” (Bourdieu & Wacquant, 1992) that is, the confrontation of results obtained through different methods (Everett, 2002; Oakes et al., 1998; Wacquant, 2006). My efforts to pursue this last point are presented earlier in this chapter.

In conclusion, I agree with Miles and Huberman (1994, p.5) when they observe that it seems clear that research is more a craft than a slavish adherence to methodological rules. No study conforms exactly to a standard methodology; each one calls for the researcher to bend the methodology to the peculiarities of the setting (Mishler 1990). In this study, I have tried to be truthful to the ontology of practice and to take all the methodological consequences this ontology brings with it. Hopefully, despite the many limitations of the research design, this is in itself a contribution to the development of practice-based empirical research in management.

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The papers of this dissertation (pages 85-204) are not available in this file, due to copyright matters:

- Paper 1:
Constraint-shattering practices and creative action in organizations
First author: Sebastiano Lombardo
Co-author: Ragnhild Kvålshaugen
- Paper 2:
We-ngineering practices: Three steps to leverage your client's creativity
Author: Sebastiano Lombardo
- Paper 3:
The Pra.v.d.a. Model: Measuring the Value of Co-Creation Practices
Author: Sebastiano Lombardo
- Paper 4:
The emergence of strategy: The role of mundane business operations
First author: Sebastiano Lombardo
Co-author: Ragnhild Kvålshaugen

16. The overall contributions of this study

This study addressed the overall research questions;

How do client-consultant interaction practices influence a firm's ability to offer unique value propositions and deliver ingenious solutions, and how do these practices influence the formation of the firm's strategy?

The following sections present the overall theoretical and methodological contributions of this study and their implications for the practitioners.

16.1 Overall theoretical contributions

Considering the findings of this study as a whole, besides the particular theoretical contributions presented in each paper, additional theoretical contributions are provided in four broader areas of strategic management research; the study of bundles of practices, the study of client-consultant interaction, the development of a dynamic theory of strategy, and the study of value creation and knowledge development in professional service firms.

Bundles of practices

This study answers the call for more attention to the way practice bundles interact (Jarzabkowski & Spee, 2009). Although from different perspectives, the four papers show how organizational ingenuity, value creation, and strategizing, while maintaining their conceptual idiosyncrasies, are bundled to each-other in the practices of client-consultant interaction.

Paper 4 in particular examines what practices (notably, communication, problem solving, and strategizing) come together in a bundle during some specific instances of strategy formation. Paper 1 and paper 3 examine bundles of communication practices and problem solving practices. These studies contribute theoretical insights into how the content of these practice bundles (e.g. the material artifacts used, the utterances of the actors, their bodily expressions, their emotions, their collaboration routines) changes and is reorganized according to particular activities (i.e. constraint shattering in paper 1 and 2; handling various capital forms in paper 3, and making strategic decisions in paper 4).

In the cases studied, when clients and consultants interact to solve a problem, the boundaries between creativity, value creation and strategizing seem to become blurred. The different practices intercept each other. Practitioners cope with different activities (e.g. producing a technical drawing, reflecting on a strategic decision, sabotaging a project goal) and engage in different practices simultaneously.

This study suggests that one of the reasons why practitioners can be adsorbed in coping with bundles of c-c-i practices is that these practices, however diverse and unique, share the same fundamental dynamics.

The dynamics of client-consultant interaction: a pragmatic view

The pragmatic view of human action as inherently creative (Joas, 1996), provides an approach to read the dynamics of client-consultant interaction, across the different practices, across the cases, and across the four papers.

The practices analyzed in this study, are enacted by actors whose actions seem to be anchored in an unreflected belief in self-evident given facts and successful habits. This is the basis that makes their practical coping possible with any situation at hand. Sets of established beliefs and habits were found in each of the cases in the study. The existing design of the highway segment, and the scope of the re-engineering (as described in the contract), of the first case in paper 1, is a tangible example. Another example is what the actors believed were possible operational improvements and technical possibilities in the CTL case in paper 1 and paper 3. Concrete examples of established beliefs are also found when it comes to strategizing practices, such as the status quo strategy plan presented at the beginning of paper 4. These sets of established beliefs and operational routines represented a solid rock bed on which the actors developed their practices. At the same time, these beliefs constrained them (by defining what is right, useful and acceptable).

However, these beliefs, and the routines of habit based upon them, appeared to be repeatedly shattered. The practices studied in paper 1 reveal the origins, the forms, and the logic of this shattering.

The logic of shattering is one of targeting constraints and releasing disruptive action against them. Shattering can be performed by any actor, consultants as well as clients. Concrete examples are found in this study, within cases of re-engineering of highway designs; in the details of upgrading production machinery, and in cases of strategic civil infrastructure planning (all papers). Shattering mechanisms are even found to be involved in the breakdowns of communication routines that originate the emergence of new strategies from everyday business operations (paper 4).

The scope of shattering, contained in its logic, is limited to challenging the validity of the constraints, and momentarily unchaining whoever is blocked in their tight grip. This liberation releases opportunities and opens the playground to creative (re-)action. What has previously been a habitual, apparently automatic procedure of action is interrupted, and the only way out of this phase is a reconstruction of the interrupted context.

This is the moment in which those practices appear, through which novel solutions are found and new value is created. These practices are focused on perceiving the breakdown (as the executives of Civeng repeatedly did in paper 4), capitalizing on the momentarily disruption of whatever was established (as the senior consultant did in the preparation meeting of the railway planning case in paper 1), and reacting to it, by proposing ideas for a new solution (see the cases of paper 1, and case 1 in paper 3), a new strategic approach, or even a new belief (paper 4). This is the moment of value creation.

Value is a multifaceted construct which, according to this study, is contingent on the very practices through which it is created. Consultants and clients were together, engaged in the shattering practices. At this stage, they continue to interact, providing or denying access to various forms of capital, enabling or disabling the exploitation of capital. It is at this point that their interactions aim to produce solutions to the client's problem (see cases in papers 1 and 3), or to let new strategies emerge (paper 4).

Through these practices a new context is constructed, that substitutes the old one that was interrupted by the shattering practices. This reconstruction can for example take the form of a new engineering design (paper 1), new routines to upgrade production machinery (paper 3), or even a new strategy plan (paper 4). This reconstruction, be it achieved through problem solving practices, strategizing practices, or other value creation practices, is a creative achievement on the part of the actors. If the actors succeed in reorienting their action on the basis of their changed context (such as a new highway design to build, or newly upgraded machinery, or a new corporate strategy plan) and thus continue with it, then something new enters the world: a new mode of acting and interacting, which can gradually take root and thus itself becomes an unreflected routine (a new design procedure in paper 1, a new machine operation procedure in paper 3, a new strategy to realize in paper 4).

Thus the repetitive dance of breakdowns, shattering and reconstruction (of beliefs, habits, communication structures, operations) seems to be the conceptual fundament through which bundles of c-c-i practices, and their strategic value, can be understood.

Towards a more dynamic theory of strategy

Responding to previous calls in the strategy literature (Porter, 1991; Regnér, 2008; Tsoukas H., 2007), this study provides theoretical contributions to the development of a more dynamic view of strategy. This contribution is provided by

- Uncovering some of the micro-foundational mechanisms that underlie organizational level constructs such as organizational ingenuity, the organization's value proposition, and strategy formation.

An example is given through the explanation of the role of breakdowns in the c-c-i practices of problem solving (paper 1 and paper 4). Through these findings this study accounts for some of the constitutive mechanisms in the development of organizational ingenuity (e.g. the ability to shatter constraints and produce creative results, in paper 1), and organizational assets (e.g. 'specialist expertise' and 'unique work methods', in paper 4). Another example is given by explaining the mechanism of breakdowns and its role in communication practices (other c-c-i practices). In this case, this study reveals some details of the managerial activities underlying the dynamics of emergent strategy formation (paper 4).

- Contributing conceptual tools to analyze the *relation* between endogenous (e.g. the firm's executives, consultants, expertise, work methods, ingenuity, communication

styles) and exogenous (i.e., the client's side) factors that may influence the dynamics of emergent strategy (see paper 3 and paper 4).

- Providing insights into how multiple actors, their activities, their behaviors, and their social structures (e.g. organizations, projects, contractual agreements) are related to concrete strategy outcomes (strategic decisions, strategic plans), or to changes in strategy (see paper 4 in particular).
- Emphasizing the ongoing interrelationships between organizational-level practices (e.g. strategy formation and project management) and individual's activities (e.g. communicating to a client, taking a strategic decision, working around a constraint) (Whittington, 2006) (see paper 1 and paper 4).

Furthermore, through its focus on social practices that include social, cultural and cognitive influences of extra-organizational actors, such as the clients, this study contributes to the broadening of the analysis of the contextual factors that influence the dynamics of strategy formation.

Put together, these analyses contribute to appreciate the relative weight of individual practices versus structural (social, organizational, technological, and strategic) conditions, in the development of the organization's ability to offer unique value propositions; to produce ingenious solutions to the client's problems; and to capitalize on client interactions in the development of strategic decisions.

Micro-foundations of value creation and knowledge development

This study, as a whole, contributes to the stream of research that, in the last two decades, have analyzed the processes of value creation and knowledge development in general and, in particular, for professional service firms (Fosstenlokken, Løwendahl, & Revang, 2003; Løwendahl, 1997; Løwendahl & Revang, 1998; Løwendahl, 2005; Løwendahl & Revang, 2001; Skjølvik, Løwendahl, Kvålshaugen, & Fosstenlokken, 2007). This research has explored the relationship between the firm's strategy and domain choice (i.e., choice of clients and projects), and the bulk of the firm's resources (knowledge and other capabilities). The conclusion is that this relationship "is best explained as value creation processes with two interrelated dimensions: direct value creation for the clients, and indirect value creation in terms of enhancing the knowledge base" (Løwendahl et al. 2001, p.911). These insights are condensed in the framework below.

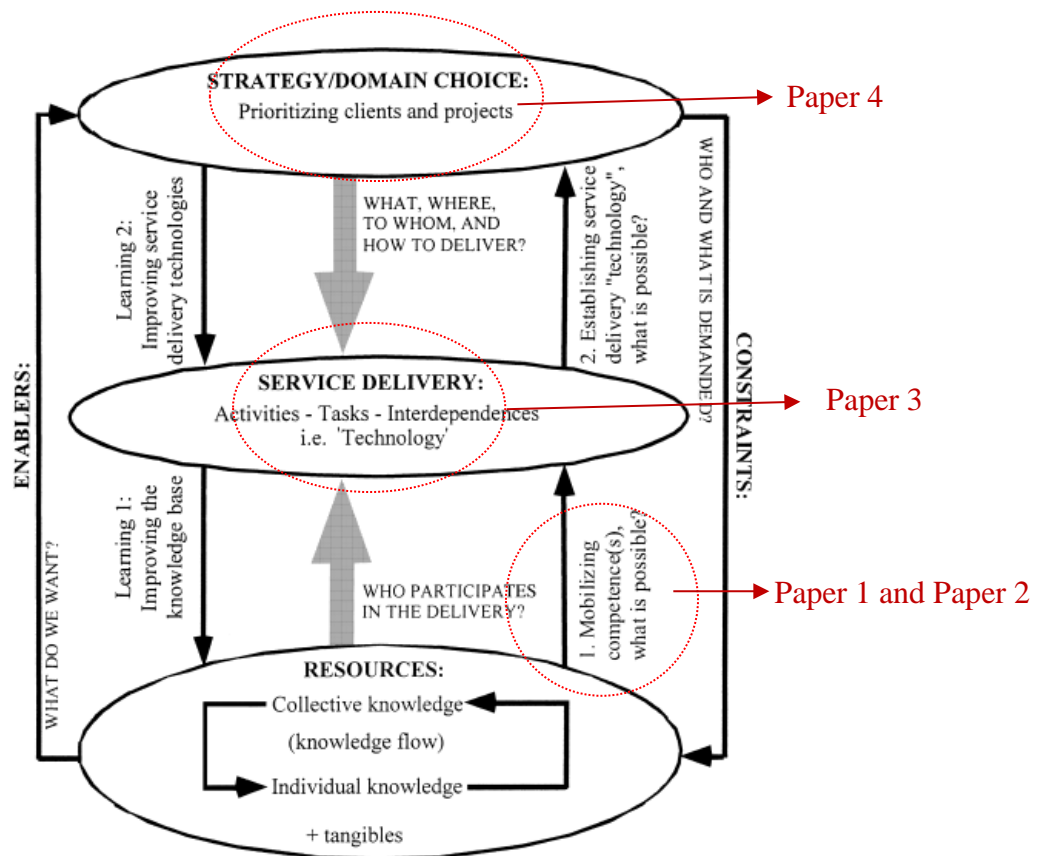


Figure 1. Value creation processes of professional service firms (from Løwendahl et al., 2001).

This study contributes theoretical and empirical efforts to this research area, by unveiling some of the micro-foundations of several of the processes illustrated in the framework of Løwendahl et al. (2001).

The first two papers provide insights on the constraint-handling practices through which knowledge and creative resources (lower and right hand side of the framework) from both the clients and the consultants are mobilized and pulled into the service delivery.

The third paper contributes to further explain “who participates in the delivery”, the “activities and tasks” in the service delivery (central, lower part of the framework in figure 1), and how the value created can be assessed and defined through these very practices.

Finally, the fourth paper targets the strategy/domain choice part of the framework (in figure 1), and provides empirical evidence of the client-consultant communication practices through which the firm’s decides on “what [services], where, to whom and how to deliver?” The whole study could thus be interpreted as an effort to take a holistic view of Løwendahl et al.’s (2001) framework, before zooming as much as possible on its parts, thereby opening the box, and peeking into the cogwheels that make it move.

16.2 Overall methodological contributions

The research methods adopted in the papers provide contributions to a range of empirical research designs.

The definition and conceptualization of creative action, with its operative focus on the breakdown as a catalyst of creativity (paper 1) is one example of the methodological contribution to the broader realm of creativity research design. The use of counterfactual analysis in the study of strategy formation (paper 4) may be another example of broader interest for the design of strategy formation research. The development of the Pra.v.d.a. model (paper 3), contributes to empirical practice research by providing examples of how habitus, and doxa (Bourdieu, 1990) can be operationalized in studies of value definition and assessment.

Looking at this study as a whole, two overall methodological contributions are provided.

The first is related to the choice of the epistemological approach (Sandberg & Tsoukas, 2011; Tsoukas, 2010). This study provides a concrete and detailed example of a methodology made to handle complex qualitative data in order to account for various modes of engagement with the world.

The second is related to two elements in the research design of this practice orientated empirical research. First, practice can be defined in various ways (Nicolini, 2012), and making the practice concept operational is methodologically challenging. This study provides an example of how the concept of practice can be operationalized for the purposes of data collection and analysis. Second, the research design contributes to unveil two critical challenges of practice data collection and analysis; the challenge of coming close not only to the practitioners' everyday lives, but to their practical coping with mundane operations; and the challenge of negotiating and gaining not only a high level of access to data sources, but also the trust of key informants and their motivation to engage in dialogues and self-reflection (which also requires a great deal of preparatory work and time-consuming relation building).

Furthermore, the practice researcher, who has to analyze very rich and complex practice data, is particularly exposed to the risks of imposing his or her scholastic view onto the data. This study contributes an example of how to manage this risk. The use of *participant objectivation* is acknowledged as a necessary part of the research design. Indeed, participant objectivation is a practice that requires much experience to be well integrated in the research design from the start, and to be mindfully executed. This study provides an example of how to make participant objectivation operational.

16.3 Implications for practitioners

Practitioners who access the results of this study may find useful insights...

... for designing and facilitating problem solving workshops;

Practitioners who are aware of the nature and function of constraint-shattering practices are better prepared to discover and manage shattering when it emerges. They may even design their collaborative practices to encourage shattering of given constraints. Practitioners who

identify the space of possibility created by shattering practices can also try to steer the creative reaction within that space. For example, during the problem definition phase, possibilities include the potential development of alternative goal states. In this stage, the activities of constraint shattering and creative reaction have remarkable consequences, as both operate at the strategic level of defining the goal state. In the generative part of the problem space, possibilities involve creating new solutions. During the assessment phase, possibilities encompass the potential creation of alternative assessment criteria and widely different views of the goal state. These insights can be of interest to practitioners engaged in managing creative action in their organizations.

... for the definition and assessment of the value created together with their clients;
Providers and buyers of professional services may use the Pra.v.d.a. model to find a common basis to build a shared definition of the value they intend to create. These actors may become more aware of three main typologies of practices that they can enact with respect to value co-creation. These typologies comprehend providing or denying access to various forms of capital; enabling or disabling capital exploitation; and preventing or promoting attrition of capital. Using these typologies to reflect upon their own practices, these actors have the basis to explore the impact of what they *do*, on the value they want to create together.

... for developing value propositions that mirrors their actual value creation practices;
The common effort of clients and consultants to look at value creation in terms of the practices they draw upon during their interactions is a useful self-reflection exercise. That is the first step towards discovering the practices behind changes in capital, acknowledging them, seizing the opportunities they provide, and preparing to manage them to create higher value. All these insights can be useful to provide value propositions that reveal potentially unique value creation practices.

..., and for using client interactions as a strategizing tool.
Practitioners, strategists in particular, can discover and manage emergent strategies to the extent they understand the communication structures that their firm routinely establishes with its clients, and to the extent they are able to detect changes in these structures. Strategies may emerge from mundane business operations, and strategists should be prepared to acknowledge the role of the clients in strategizing and to capitalize on it. The findings from this study may help practitioners to collaborate with their clients in kicking off and sustaining the creative part of the strategizing effort.

17. Summary and conclusion

This study addressed the overall research questions: *how do client-consultant interaction practices influence a firm's ability to offer unique value propositions, and deliver ingenious solutions, and how do these practices influence the formation of the firm's strategy?*

The research questions have been answered through an empirical exploration of client-consultant interaction (c-c-i) practices in thirty cases, in two business sectors; civil engineering and manufacturing of metal products. Each paper aims to explain different and complementary aspects of c-c-i practices, and to contribute to the separate bodies of literatures used in the study.

The first two papers address the creative aspect of c-c-i practices, with particular focus on the practices used to handle the constraints that inhibit problem solving processes. These papers contribute to the literature on organizational ingenuity by showing how one particular set of constraint handling practices (shattering practices) may lead to creative problem solving.

The third paper addresses the value creation aspect, focusing on how c-c-i practices may influence the value created by consultants and clients together. This paper contributes to the literature on value creation by developing a value definition and assessment model that accounts for the very c-c-i practices behind the value creation in each specific case.

The fourth paper focuses on the strategic aspect of c-c-i practices. This paper contributes to the strategy literature by providing a counterintuitive account of how clients may play the role of strategists, and of how mundane business operations may become the locus of emergent strategy formation.

Considering the findings *across* the single papers, the overall theoretical contribution of this study is related to the examination of practice bundles, and to the development of a dynamic theory of strategy. In short,

this study reveals that various c-c-i practices come together in bundles during mundane business operations. These bundles of practices can simultaneously be sources of creative problem solving, determinants of value for the client, and constitutive elements of emergent strategy formation for the firm.

Overall, this study provides three main methodological contributions. The first is the development of a methodology to account for practitioners' various modes of engagement with the world (absorbed, deliberate and detached coping). The second comes from providing an example of how the concept of practice can be operationalized, and of how the critical challenges of practice data collection and analysis can be addressed and solved. The third contribution is the provision of an explicit account of how participant objectivation (the effort to grasp and master the pre-reflexive social and academic experiences of the social world that

the researcher tends to project unconsciously onto ordinary social agents) has been made operational.

Finally, the study provides practitioners with insights into how to design problem solving workshops; how to manage creative sessions; how to define and assess the value created together with their clients; how to develop value propositions that mirrors their actual value creation practices; and how to consider client interactions as a tool in the formation of emergent strategies.

18. Future research – The need for a research program

The papers suggest several topics that researchers interested in the practice of client-consultant interaction could explore in the future. One paper suggests studying the connection between various forms of constraint-shattering and forms of creative reaction; the exploration of different types of constraint handling practices, to see whether or not they contain elements of shattering; and how these practices influence the relationship between constraints and creative action in organizations. Another paper invites researchers to explore the impact of different kinds of mundane business operations on the emergence of new strategies, developing the study of particular elements of the social system of communications, such as recurrent breakdown mechanisms and variation selection mechanisms. Another paper proposes to use practice theories to further develop models that explain the connection between c-c-i practices and value creation.

The overall conclusions from this study suggest that further research could explore the entwinement of organizational ingenuity, value creation and strategizing through a holistic view of c-c-i practices. In other words, researching the single aspects, within specialized streams of literature, is but one of the pieces necessary to fulfill this research endeavor.

Further effort is required to unveil the mechanisms through which organizational ingenuity, value creation, and strategizing co-exist and are intertwined. This topic can be the object of a research program. This program would put the mundane practice of client-consultant interaction at the core of the research design. Researchers would then depart from this core, to explore different practice features (e.g. creative aspects, issues of value creation, strategizing issues) and bring the results back to the core, to accumulate knowledge about the logic of client-consultant interaction practices. This doctoral dissertation is a starting point.

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Appendix: Semi-structured interview guide⁷

Questions: 60-90 min semistructured interviews	Topic	Goal
<ul style="list-style-type: none"> - Can you start by telling about yourself; education, career, position and functions in your firm? - Your role in this project/case? 	Individual	General information about the informant
<ul style="list-style-type: none"> - What is the strategic context of this project (at the business unit level and corporate level)? - Do you think this project and/or your interaction with the consultant in this case will influence the strategies of your service provider? and if yes how? (asked to the clients only) 	Strategy and strategizing	Understanding the strategic significance of their co-creation work.
<ul style="list-style-type: none"> - How would you describe your work in this workshop? (sub-questions within the following topics) <ul style="list-style-type: none"> o Constraint handling o Creative performance (personal and project team's) o Communication (with colleagues, with extra-organizational actors) - How would you describe the work of your work group? - Is this what you expected? - What would you change for the next time? and why? 	Practice	Invite to self-reflection about informant's own practices in the three phases of the workshop (detached coping)
<ul style="list-style-type: none"> - What do you would consider as the standard of excellence for the work you did in this workshop/project? And why? - How would you assess you own and your colleagues performance based on these standards (benchmark)? 	Practice	Elicit informant's insights on standards of excellence in co-creation (detached coping)
<ul style="list-style-type: none"> - How would you describe the kind of value that has been created in this workshop (for you, for your organization, across organizations)? - How would you assess the value (if any) created through your interaction with your consultant/client? 	Value creation	Elicit informant's understanding of added value coming from client-consultant interactions (followed by an invitation to use the assessment template in paper 3)
<ul style="list-style-type: none"> - Anything else you would like to discuss? 	Any topic	Make sure nothing important is forgotten

⁷ This interview guide contains some of the questions that were asked during the first interview. The second or third interview with the same informant was non-structured, and was used to get additional data about specific topics, discovered during the first interview.

Notes