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# **FACULTE DES SCIENCES ECONOMIQUES ET SOCIALES**

HAUTES ETUDES COMMERCIALES

## **COOPERATIVE CASE WRITING : A NEW APPROACH FOR BRIDGING THEORETICAL SIGNIFICANCE AND PRACTICAL RELEVANCE ?**

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COOPERATIVE CASE WRITING:  
A NEW APPROACH FOR BRIDGING THEORETICAL  
SIGNIFICANCE AND PRACTICAL RELEVANCE ?

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***Title: Cooperative case writing: a new approach for bridging theoretical significance and practical relevance?***

*Abstract.* Typically, researchers in the academic community face a trade-off decision when crafting a research project. Either, the research results are to be used for publication in academic journals, thereby emphasizing the criteria of theoretical significance such as validity and reliability; or the results will be used for concrete business applications (often the company funding the research), thereby emphasizing criteria of practical relevance. Seldom, however, is the same report submitted to both audiences, since the criteria applied to judge the quality of research seem to differ so greatly. We propose a concrete research approach, co-operative case writing, that is geared to not only satisfy both audiences, but to mutually reinforce the criteria used by each audience to gauge the quality of the research. Co-operative case writing refers to the joint design and write-up of several case studies within one organizational setting by both managers of that organization and academics. This paper shows how co-operative case writing was used to produce impactful research in a the largest case writing project in the history of Siemens, the German electrical engineering and electronics multinational.

*Key words.* Action research, case study research, validity, reliability, practical relevance, learning organization, knowledge management, organizational behavior.

***Titre : Rédaction coopérative de cas : une nouvelle approche pour faire le lien entre l'importance de la théorie et la pertinence de la pratique.***

*Résumé :* Typiquement, les chercheurs du monde académique doivent faire face à un dilemme quand ils initient un projet de recherche. Soit les résultats de la recherche seront utilisés pour une publication dans un journal académique, favorisant de ce fait les critères d'importance théorique tels que la validité et la fiabilité ; soit les résultats seront employés pour des applications concrètes en entreprise (la recherche étant d'ailleurs souvent financée par ces entreprises) insistant de ce fait sur des critères jugés plus importants dans la pratique. Rarement, cependant, le même rapport est soumis aux deux publics. En effet les critères d'application pour juger de la qualité de la recherche semblent différer considérablement entre le monde académique et le monde de l'entreprise. Nous proposons ici une approche concrète pour remédier à ce dilemme : la rédaction coopérative de cas. Cette approche a pour but de non seulement satisfaire les deux publics, mais aussi de combiner les critères employés par ces deux mondes afin d'améliorer la qualité de la recherche. Cette rédaction coopérative de cas se base sur la conception et la rédaction conjointes de plusieurs études de cas par une organisation mise en place à la fois par des managers d'entreprise et des membres du milieu académique. De plus, cet article nous montre comment la rédaction coopérative de cas a été utilisée pour produire une recherche pertinente dans le plus grand projet d'écriture de cas de l'histoire de Siemens (une multinationale allemande d'ingénierie électrique et d'électronique).

*Mots clés :* Recherche en étude de cas, validité, fiabilité, pertinence de la pratique, entreprise apprenante, management du savoir, comportement organisationnel

## INTRODUCTION

”There is nothing as practical as good theory.”

Kurt Lewin.

Theoretical significance and practical relevance ideally would be two sides of the same coin. The former is an important issue in academia, where construct validity, internal validity, generalizability and reliability of the research findings are hallmarks of theory (Cook and Campbell, 1976; Tahai and Meyer, 1999; Whetten, 1989), and a number of authors in the research methodology literature have cautioned us against de-emphasizing theoretical significance in management research (e.g. Mitchell, 1985; Scandura and Williams, 2000). However, managers often lament that the research results emanating from the academic community, while perhaps theoretically significant are often obvious, sometimes non-implementable, or simply incomprehensible (e.g. Probst, 2002; Thomas and Tymon, 1982; Tranfield, 2002). Indeed, several authors have voiced their concerns regarding the extent to which management research might evolve into an ivory tower activity, far removed from any practical relevance (e.g. Sutton and Straw, 1995; Eisenhardt, 1989).

The literature suggests that the two sides of the coin seem largely irreconcilable. In other words, an increase in theoretical significance would lead to a decrease in practical relevance, and vice versa (Thomas and Tymon, 1982). Although, in the quest of developing a theory of the firm (Coase, 1937) these topics have been discussed in print since the early days, the frequency and magnitude of the recent debate of practical relevance versus theoretical significance seems unprecedented (see, e.g. Davenport and Markus, 1999; Scandura and Williams, 2000; Rouse and Daellenbach, 1999, 2002; Larsson, 1993; Mitchell, 1985; Gerstner and Day, 1997; Tranfield, 2002; van de Ven, 1989: 487).

The intended contribution of this paper is to refute the widely held notion that the criteria of theoretical significance and practical relevance are opposed and irreconcilable. To reconcile the two criteria we will first propose a specific research framework that integrates the two approaches. We call this framework ‘co-operative case writing.’ Co-operative case writing refers to the joint design and writing of case studies by both practitioners *and* academics. Second, we provide an example of how the framework applies to a research project in a concrete corporate setting, the Siemens company, where a total of 18 case studies were produced over a two-year period (details of this research project are given in the appendix). In providing the reconciliation, the proposed framework seeks to demonstrate how the criteria of theoretical significance and practical relevance can be complementary, rather than mutually exclusive.

## APPROACH

The framework in this paper is formulated to achieve a particular goal, subject to certain constraints. The goal is to convince both managers and researchers that the debate can be reconciled. The main constraint is that this reconciliation is attempted within a specific framework, co-operative case writing. Two related constraints apply. The first constraint upon the framework is to accept the established concepts of the positivist approach, which are used to gauge the theoretical significance of research findings (Campbell and Stanley, 1966; Cook and Campbell, 1979; Miles and Huberman, 1994). These concepts, commonly referred to as construct validity, internal validity, generalizability, and reliability seem to have gained acceptance in the interpretative approach as well (e.g. Yin, 1994; Eisenhardt, 1989). The second constraint upon the framework stems from the necessity to formulate a set of criteria for gauging the practical relevance of research findings. Quality measures from the

perspective of practical relevance seem much less established than their counterparts in theoretical significance. However, Thomas and Tymon (1982) have provided a useful conceptualization of practical relevance, which comprises the criteria of non-obviousness, goal relevance, operational validity, and knowledge explication.

In satisfying these constraints, we will step inside framework of practical relevance, demonstrating how our tending to the criteria of theoretical significance may benefit the procedures of practical relevance. Correspondingly, we will step inside the framework of theoretical significance, demonstrating how tending to the criteria of practical relevance may benefit procedures of theoretical significance. Put differently, our strategy is to be persuasive to both the an audience of theoretical significance, as well as an audience of practical relevance, each on its own terms. No claim will be made that the framework proposed is the best one or the only one that can be devised for reconciling the two sets of criteria. Instead, in using the proposed framework to refute the notion that the criteria of theoretical significance are irreconcilable with those of practical relevance, we intend to open up the possibility for additional frameworks to be developed and advocated.

### **WHAT IS CO-OPERATIVE CASE WRITING?**

Co-operative case writing has its roots in the resource-based view of strategy. Over the past fifteen years, the focus of much strategy and management research has shifted from an outside perspective on industry structure and dynamics (Porter, 1980, 1985) to an inside perspective in searching for sources of sustainable competitive advantages. Influenced by the resource-based view of the firm, scholars have particularly sought to identify firm-idiosyncratic resources and capabilities that reside *in* the firm, rather than outside the firm (e.g. Barney 1991; Wernerfelt 1984, 1995; Prahalad and Hamel 1990; Eisenhardt and Martin 2000). The ambition to open the ‘black box’ of the company and develop a ‘theory of the firm’ (Coase 1937) inspired a wealth of hypotheses-generating research. Two broad approaches stood out here. The first, quantitative, approach focused on collecting, processing, analyzing and interpreting primary (often survey-based) or secondary data. These were frequently relatively isolated indicators tested for their effect on firm performance. As van Maanen put it, the second approach aimed at “reclaiming qualitative methods for organizational research” (van Maanen, 1979: 520). In line, research inspired by the qualitative paradigm strives at doing research *in*, rather than on organizations and has especially made use of the case study methodology (Rouse & Daellenbach 2000; Mintzberg 1979; Eisenhardt 1989; Schriesheim, Powers, Scandura, Gardiner, & Lankau, 1993). Methodology scholars agree that case studies are particularly appropriate for studying contemporary phenomena in a real-life context, and for identifying idiosyncratic firm resources and capabilities in situations of blurred boundaries between context and phenomenon under investigation (Yin, 1994; Stake, 1995). Co-operative case writing is in the spirit of this line of thought. Co-operative case writing constitutes a special form of case writing that involves both practitioners and academics, thereby purposefully blurring the boundaries between research subject and research object (Probst, 2002; Reason and Rowan, 1981).

Traditionally, case writing is mostly used for teaching purposes in management training (Locke & Brazelton, 1997; Thomas, 1998). As teaching tools case studies are widely used in MBA programs around the world, since they enable students to learn from real life situations that they as future managers will encounter. Working with cases gives students an opportunity to compare their own solutions to problems with the actual ones. Discussing and evaluating alternative possibilities helps them to acquire a wider view of realistic management options.

In this sense case studies are convenient vehicles for transferring company knowledge and experience. In addition to this, due to the narrative style of case studies, they are open for discussion and reflection. In fact, this is precisely the rationale for using them for teaching purposes in the first place. This suggests that cases are sensitive to the different types of knowledge contained in a particular business problem. Not only is conceptual knowledge being recollected, but also the practical experience of putting this conceptual knowledge to work is conveyed (Probst, 2002). Through their ability to convey intricate problems and experience cases are therefore uniquely suited for portraying the tacit knowledge and experience acquired over time. Not only does tacit best practices and common experiences become explicit, but new light is also shed on past failures, disclosing important lessons learned. This helps students to become intimately acquainted with a real-life situation in the business world.

Given the benefits of case studies for teaching purposes, it is interesting to note that in industry, little use has been made of cases as a method for management training. This is the rationale of co-operative case writing. In this method, companies systematically write their *own* cases, i.e. co-operatively document the knowledge and experience they themselves have acquired over time, under the guidance and scrutiny of academics. As shall be explored shortly, during the co-operative case writing process, knowledge that is implicit and closely linked to experience, can be made explicit and put to work. The narrative style of case studies make them infinitely more interesting and engaging than the ubiquitous bulleted presentations that pervade corporate life. Finally, and perhaps most importantly, case writing within a company has the benefit of fostering organizational learning: the collective experience of co-operatively recapping past experience allows for levels of retrospective sense-making hitherto untapped.

After having defined what we mean by co-operative case writing, we turn to an explication of the longitudinal field-based research at Siemens, where the co-operative case writing approach was applied.

## RESULTS AND DISCUSSION

We subsequently juxtapose critical quality measures for ensuring theoretical significance with measures for ensuring practical relevance, in order to demonstrate that the two need not be seen as mutually exclusive. Based on a review of the research methodology literature, four measures are most commonly applied to ensure the *theoretical significance* of the research findings (Stake, 1995, 1988; Cook and Campbell, 1976, 1979; Scandura and Williams, 2000; Larsson, 1993; Kidder and Judd, 1986)<sup>1</sup>:

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<sup>1</sup> The interrelationship of validity and reliability is worth noting. The conjecture in the literature is that just because an observation or a conclusion is reliable does not mean that it is also equally valid. To illustrate, say the watch of Frederic Taylor went 7 seconds slow. Every time Taylor used this watch in determining the speed of production processes, it would underestimate the time by 7 seconds. Taylor's watch in short provided an invalid indication of time needed to produce a certain product (i.e. its measurement would have been characterized by nonrandom error). However, this nonrandom error would not have affected its reliability, since it would systematically underestimate time required by 7 seconds every time a measurement was made, thereby not leading to inconsistent results in repeated measurements (i.e. its measurement is characterized by the absence of random error). In short, Taylor's watch would have provided a perfectly reliable, but invalid representation of time. Overall, for any conclusions in research to be theoretically significant, they must be based on a measurement process that is both reliable and valid. The first author thanks Winfried Ruigrok for the fruitful discussions along those lines.

- construct validity (the degree to which a study investigates what it claims to investigate),
- internal validity (the degree to which findings correctly map the phenomenon in question),
- generalizability (the extent to which findings can be reproduced in another setting), and
- reliability (the degree to which the study is free of random errors).

Based on the emerging literature on practical significance, we are drawing on Thomas and Tymon (1982) to derive four measures of *practical relevance*:

- non-obviousness (the degree to which a theory or framework meets or exceeds the complexity of common sense already used by a practitioner),
- goal-relevance (the correspondence of the outcome - or dependent variable - in a theory or framework to the things the practitioner wishes to influence),
- operational validity (the degree to which the practitioner is able to implement action implications of a theory or framework by manipulating its causal - or independent - variables), and
- knowledge explication (the degree to which a given theory or framework helps the practitioner to understand and act previously tacit knowledge, hidden assumptions, and 'ways of doing things around here').

The next sections first provide a brief analysis of the two sets of quality criteria above. This is followed by a discussion of our empirical findings, based on a longitudinal field research project at the Siemens corporation (for readers' convenience, empirical findings are provided in *italics*).

### **Construct validity versus non-obviousness**

In the literature, construct or concept validity relates to research procedures, and applies to the data collection period. The construct validity of a procedure denotes the quality of the conceptualization or operationalization of the relevant concept (Smaling, 1992; Sutton and Straw, 1995). In essence, construct validity refers to the extent to which a study investigates what it claims to investigate, i.e. to the extent to which a procedure leads to an accurate observation of reality (Denzin and Lincoln, 1994; Huberman and Miles, 1984; Miles and Huberman, 1994). Whereas construct validity is a criterion for enhancing the theoretical significance, non-obviousness of the research findings is a criterion that appertains to practical relevance. Non-obviousness refers to the extent to which a theory or framework meets or exceeds the complexity of common sense already used by a practitioner (e.g. Thomas and Tymon, 1982: 348).

*The act of co-operatively creating a written report made it possible to enhance the accuracy of research findings in capturing phenomena encountered by Siemens managers, since the reports included personal impressions and additional information gained from company visits, interviews and presentations. In the first phase of the research, which started in April 2000, as well as in the second phase of the research, which started in August 2002, representatives from Siemens were assigned to work on a draft outline of the case studies they felt were needed to reflect phenomena deemed important to the company. The authors of this article facilitated this process of new-meaning creation.*

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*To this end the final case studies were written by young researchers, mostly doctoral students from various universities, in collaboration with Siemens managers. The doctoral students were coaching the process of co-operative sense making in the writing process. It is important to realize that these 'case coaches,' as they were called, did not act as teachers - but as 'teasers.' Whereas teachers typically instruct, and provide information, teasers 'tease' out the accumulated knowledge and experience and facilitate the reflective process necessary to elucidate the merit of this experience in future.*

*During the co-operative writing process, managers described the initial situation regarding the case, the problems they needed to solve, and the challenges faced, and then evaluated the results of the project. The group thereafter discussed questions such as how to assess the 'facts' presented to them, which features of the case are especially noteworthy, and what they hoped to convey to the readers. People from different backgrounds, i.e. other managers from the case company, partners, coaches and consultants, provided further input. This helped not only in integrating a wide variety of different viewpoints, the collaborative writing process also provided a final report that differed quite radically from a study written by a single individual (whether academic or practicing manager) in that the collaborative writing process enabled a more unambiguous reflection of reality.*

Discussion: Skepticism regarding the case study method often suggests that case study investigators fail to develop a sufficiently operational set of measures and that 'subjective' judgments are used (Yin, 1994: 41; Denzin and Lincoln, 1994; Stake, 1995). The literature recommends data- and researcher-triangulation to amend this drawback and in order to arrive at an unambiguous reflection of reality (see, e.g. Pettigrew, 1973, 1990; Burgelman, 1994, 2002). The term triangulation originally denotes the surveying of land using trigonometry, and is used in social science research to study the object of research in at least two ways (Smaling, 1992: 88; Bullock and Tubbs, 1987, 1990; Jick, 1979). The basic principle of triangulation can be applied to researcher triangulation (e.g. when two or more researchers are involved in the study), and data triangulation (e.g. when data from different sources is compared, see Smaling, 1992; Denzin, 1989; and Lincoln, 1994). The objective of both forms of triangulation is to validate the data collected through correcting errors of fact. The usual approach thereto is to have key informants and peers reviewing the draft of the case study (see, e.g. Yin, 1994: 143 – 145). Orgland (1995: 200- 201) has highlighted the benefits of not only having the final case study draft reviewed, but to also have all interview transcripts reviewed by the interviewees. Yin emphasized that the objective of using these reviews is not to have reviewers correct the conclusions drawn, but to validate the actual facts of the case study (Yin, 1994: 144). The corrections made in the process benefit the construct validity of the study in at least two ways. Firstly, the likelihood of reporting false, or commercially sensitive data is minimized. Secondly, in situations where no objective truth may exist, triangulation can be instrumental in portraying the different perspectives and viewpoints that can then be presented in the case study report (e.g. Denzin and Lincoln, 1994).

The researcher- and data-triangulation practiced in co-operative case writing exceeds these requirements in that not only data from academic researchers are compared, but also data from practitioners. Thus, rather than just using practitioners to validate a written report, co-operative case writing actively involves practitioners as co-researchers (see also Reason and Rowan, 1981). Such researcher- and data-triangulation is therefore likely to serve as a nonreactive measure of changes in practice or performance (Denzin and Lincoln, 1994;

Denzin, 1989; Smaling, 1992). Nonreactive data are historical, archival data that are not influenced by the perceptions or biases of the individuals providing or gathering the data (Miles and Huberman, 1994; Glaser and Strauss, 1967). This represents the basis of the co-operative case writing approach. In other words, the writing of a case constitutes learning by doing, and knowledge is created through interaction, reflection, and thoughtful documentation by academics and practitioners.

### **Internal validity versus goal relevance**

Logical validity, also commonly called 'internal validity' (e.g. by Smaling, 1992; Yin, 1994; Bullock and Tubbs, 1987) is an important second criterion for gauging the theoretical significance of research findings. It refers to the question of whether the reasoning, the 'logic' of the research framework provides arguments that are powerful and compelling enough to defend the research conclusions. Essentially the concern with establishing internal validity is one of establishing causal relationships, whereby certain conditions are shown to lead to specific outcomes, as distinguished from spurious relationships (e.g. Cook and Campbell, 1979). In contrast to the previously discussed measure of construct validity, which mainly applies to the data collection phase of a study, internal validity applies to the data analysis phase (Yin, 1994: 105). The most powerful form of argumentation ensuring internal validity would be a truly experimental research framework, which has the capacity to clearly demonstrate that variable x leads to variable y, and that y was not caused spuriously by a third variable z. However, the non-experimental nature of most qualitative research makes establishing causality exceedingly difficult (Stake, 1995: 242), and therefore proxies for establishing the causality of the findings are often used, as shall be discussed shortly. Whereas internal validity represents a criterion of theoretical significance, goal relevance constitutes a property of practical relevance. Goal relevance refers to the correspondence of the outcome (or dependent variable) in a theory or framework to the things the practitioner wishes to influence (Thomas and Tymon, 1982: 347).

*Co-operative case writing at Siemens was characterized by four interrelated, but distinct approaches: (a) All those who took part in a project were questioned not only about what happened, but also about how it happened. (b) The group of case writers comprised case coaches, or outsiders, as well as members of the case company (involving as many members as possible from different functional groups that participated in the project). This added an important dimension, because the outsiders played devil's advocate, questioning and challenging the inside view of the project, thereby 'teasing out' valuable insights that would otherwise not surface. (c) Since the case coaches did not participate in the project, they were expected to research the details and to try to understand how things worked in the 'foreign' company. This obliged the insiders to carefully explain details they would otherwise take for granted. The outsiders, in turn, contributed an additional perspective as they brought their own mental models of how things worked in their research with other companies to the group. (d) During the 'teasing' process, managers became aware of tacit assumptions, rules and prevalent behavioral codes that were new to them, and also caused them to question these assumptions. Differences that would not otherwise have been obvious were thus revealed in the case company. Discussion of these differences during the case-writing process also created a new awareness of certain rules, habits and behaviors in the case organization itself that were usually hidden below the surface.*

Discussion: Two tactics are commonly used to ensure internal validity in case studies (Denzin and Lincoln, 1994; Denzin, 1989): pattern matching, and convergent validity. *Pattern*

*matching* has been emphasized as the most opportune strategy for ensuring internal validity of case studies. Pattern matching compares an empirically-based framework with a predicted, theoretical one. If the patterns coincide, or match, the results strengthen internal validity (Yin, 1994: 109). Pattern matching can be particularly powerful if patterns coincide across previous studies (Eisenhardt, 1989). This form of pattern matching has also been referred to as *convergent validity* (Denzin and Lincoln, 1994; Bullock and Tubbs, 1987, 1990) to denote that the validity of findings can be greatly enhanced if they can be shown to be consistent with similar findings in other contexts. Pattern matching and convergent validity as strategies for ensuring internal validity were widely observed in the present research. To illustrate, the case coaches consistently compared existing patterns (i.e. the patterns based on their knowledge of previous research) with empirically-based patterns (i.e. the issues of importance to managers). In comparing known theoretical patterns with empirically-based ones, it was also made possible that rival or contrary evidence and thinking were accommodated in the data analysis phase, thereby enhancing the probability of ruling out spurious relationships between dependent and independent variables.

### **Generalizability versus operational validity**

External validity or generalizability refers to the extent to which findings apply to contexts other than the one researched. Case studies make generalizability of the empirical findings difficult, because of the characteristically small sample size used (Sutton and Straw, 1995; Weick, 1995; Yin, 1994: 38 – 40; Eisenhardt, 1989). As a consequence, case study authors often walk a thin line between acknowledging the specific contexts of their case study, and seeking wider applicability or external validity (i.e., generalizability) of their findings (Ruigrok et al., 2002). However, theoretical significance depends critically on the generalizability of findings (see, e.g. Sutton and Straw, 1995; Wacker, 1998; Weick, 1995). If generalizability were to be de-emphasized from research, Wells, hypothesizes, "medical researchers would never move beyond white rats" (Wells, 2001: 495). Whereas generalizability appertains to the domain of theoretical significance, operational validity is a property of practical relevance and refers to the ability of the practitioner to implement action implications of a theory or framework by manipulating its causal (or independent) variables (e.g. Thomas and Tymon, 1982: 348).

*The field research involved cases from various levels and functional groups within Siemens. The research specifically focused on two groups: the group of case writers, and the project group interviewed for the purposes of the case study. We found that in the case-writing group, new knowledge was created through intensive and thoughtful discussions in the group that sought to establish 'how' a certain outcome materialized. Especially the case coaches in their roles as devil's advocates played an important role in stimulating discussion and ensuring that common ground did not emerge prematurely. In this process it was critical that individual views and perspectives were influenced and broadened by the group. This mutual challenging of viewpoints in discussions and the new knowledge that the process yielded made learning at group level more than just some aggregate of individual learning.*

*The research further showed that participants profited in three ways. First, at the individual level, the procedure gave each member of the group a chance to reflect on the project, reinforcing individual learning. There was usually no other such opportunity to reflect on the meaning of past events, projects, and business assignments, as members of the project team were often immediately assigned to new groups and had new tasks to perform, once a project ended. Second, at the group*

*level, the project group received feedback on the comments they made during the interviews, since the finished case report was made available and circulated for further discussion. That approach enabled the group members to see how their points of view had been incorporated into the case study and what they added to the final picture. In addition to this, each member of the project group was also able to read other group members' complementary views. Third, a similar process evolved at the company level. Here, the field research showed that the co-operative writing and use of cases contributed to the evolution of the shared knowledge base, since the different case writing groups in the different departments that participated in the study were keen to learn "how their colleagues were doing." The process of feeding the written cases back into the company represented an institutional arrangement for collecting, storing and disseminating information. When the case report was presented and distributed throughout the organization, and later made available for a general audience, it increased Siemens' ability to reflect on its past, thus creating an environment conducive to collective learning.*

Discussion: Lack of generalizability constitutes perhaps the single-most important challenge to the theoretical significance of the case study method. In this stream of inquiry, researchers have commented that the study of a single case is not as important as the study of a larger sample of cases in order to obtain generalizations pertaining to an even bigger population of cases (Denzin, 1989; Herriott and Firestone, 1983; Yin, 1994). In her widely cited paper, Eisenhardt (1989) argues that case studies can nonetheless be a starting point for theory development and suggests that four to ten case studies may provide a good basis for generalization. In the case of a single case study, research that makes use of different units of analysis within one corporate context may be a "small step toward grand generalization" (Stake, 1995: 238). However, some authors have argued that generalization cannot, and should not, be emphasized in all research, because 'overgeneralization' can draw away attention from the particularities idiosyncratic to the case studied (Mir and Watson, 2000), in other words, it may draw researchers' attention away from understanding the case itself (Stake, 1995; also Mintzberg, 1979). Ruigrok et al. have argued that to the extent to which units of analysis within a case study can be seen as subcases, analysis of single embedded case studies would be structurally similar to cross case analysis (Ruigrok, Gibbert and Kaes, 2002). This suggests that generalizability of single case studies, which focus on various subcases within the corporate context, would equal that of multiple case studies, and hence enhance the generalizability of the research findings. This seems particularly appropriate in the case where several industries in the form of different business units are included in a given study.

### **Reliability versus knowledge explication**

Reliability refers to the extent to which later researchers can arrive at the same insights as previous researchers, if the former were to conduct the same study again (Smaling, 1992; Denzin and Lincoln, 1994). Reliability is often used as a methodological requirement for the results of the research study, such as collected data, interim findings, and final conclusions (see, e.g. Denzin and Lincoln, 1994; Yin, 1994; Smaling, 1992). By contrast, knowledge explication appertains to practical relevance, and refers to the degree to which a given theory or framework helps the practitioner to understand and act previously tacit knowledge, hidden assumptions, and 'ways of doing things around here' (e.g. Eisenhardt, 1989; Probst et. al, 1999; Thomas and Tymon, 1982).

*Within the case writing groups, as well as in the final reports, narratives featured strongly. To illustrate: the labels, images and expressions used in the case studies were the outcomes of a process of constructing shared meanings. The final report, due to its narrative style, conveyed case writers' assumptions about how to describe aspects of a given project. The writers discussed ways of evaluating the results of the project, and of making sense of their own impressions, together with all the information gathered from documents, interviews and other sources. Members of the company used narratives in their planning processes, in order to clarify to others the thinking behind their plans, and also in order to capture the imagination and in order to stimulate the enthusiasm of other employees. This technique was based on the recognition that a story defined a set of relationships and a sequence of events, and identified causes and effects. The story, with its narrative approach, weaved all these elements into a complex whole that is likely to be remembered.*

*Furthermore, the field research presented here showed that three types of knowledge, which differed in scope, level of specificity, and degree of explicitness emerged in the case writing groups. First, task-related knowledge. This was factual knowledge that told managers how to accomplish a given task. This type of knowledge was highly specific, limited in scope and application, and tended to be relatively implicit. An example was an engineer's knowledge of how to build or repair a particular technical device. Conceptual knowledge, the second type of knowledge, had a wider scope, but was less specific. It was concerned with ways of approaching a problem or a project. Examples of conceptual knowledge included procedures for launching a product, or for implementing a research and development project. In its broadest form, conceptual knowledge represented knowledge about methods for solving problems. It was usually explicit, and provided a framework within which specific tasks can be approached. Relational knowledge, the third type of knowledge was mostly implicit, and related to particular persons, habits, rules of the game and hidden rules within the organization. Elements of relational knowledge were found, for example, in descriptions of the management interfaces between different divisions or geographically divided teams, or in the characteristics attributed to persons who played an important part in the projects investigated. The use of images, metaphors and associations also conveyed relational knowledge. Discussion of the case also led to development of the collective knowledge base, since participants contributed their personal insights, recall their own work experience, and add the impressions they have gained during visits to the company.*

Discussion: The reliability of a study demands the absence of random errors (Smaling, 1992: 79; Yin, 1994: 45). According to Yin, the objective is to ensure that the results of a given study can be achieved a second time, when the original methods and procedures are followed closely (Yin, 1994: 45). To enhance reliability of research findings, it is often suggested that research procedures be documented as closely as possible in order to make the process by which the results were found as transparent and replicable as possible (Smaling, 1992; Huberman and Miles, 1984). This requirement becomes even more imperative in qualitative studies where procedures are often emergent, rather than planned (Denzin and Lincoln, 1994; Reason and Rowan, 1981).

Several measures to enhance the reliability of the empirical results of a qualitative research study can be found in the literature (see, e.g. Denzin and Lincoln, 1994). For case studies, the most widely used approach to enhance reliability is that of Yin (1994). According to this author, reliability can be approached in conducting the research "as if someone were always

looking over your shoulder” (Yin, 1994: 45; cited in Orgland, 1995: 203). The problem of reliability in case studies then becomes a function of documentation. In other words, reliability can be enhanced through meticulous documentation and elucidation of the research procedures taken. One way to do this is through a case study protocol. The case study protocol can be complemented by a case study database (Yin, 1994; Stake, 1995).

The present field research has shown that the narrative structure of case studies is particularly well suited for making tacit forms of knowledge explicit in order to capture them in a case study protocol. As Yin emphasizes, an encompassing case study protocol is the most important approach to ensure reliability (Yin, 1994: 45, 67 – 76). The present research showed results similar to Eisenhardt, (1989), who argues that stories are a good way to make tacit knowledge explicit and to ensure the readability and accessibility of the research findings. Extending, Yin, who mentions that the compilation of a case study database can also enhance the reliability of a given study (Yin, 1994: 45; 98 – 102), the present research has shown that the narrative structure of case studies not only enhances the readability of case studies, but also helps create a comprehensive case study database that captures a wealth of tacit knowledge previously inaccessible, thereby benefiting both the practical relevance as well as the theoretical significance of the research findings.

### **APPLICABILITY**

When is it appropriate to conduct co-operative case writing research? Based on our empirical work, three preconditions have to be met. First, the proposed method requires significant commitment from the side of the researched organization to enable the necessary collaboration between academics and practitioners. One reason for the difficulty in gaining this commitment and access is that the researcher has to effectively ‘sell’ the research questions to the host organization by emphasizing the benefits the research is likely to entail. This means that it can be extremely difficult not to influence the ongoing strategy-making process (i.e. the object of investigation) and still maintain a legitimate presence in the field insofar as managers would quickly be tempted to seek advice from the researcher and ask the researcher to intervene in the project as a quid pro quo for allowing further observations (see also Doz, 1996). The challenge for researchers here is to balance two issues: (a) the need to make executive managers appreciate the relevance of a given study in order to encourage them to provide access and information, and (b) to still maintain a critical distance. As van de Ven has succinctly summarized:

”At issue here is not that strategic management research incorporates issues of consulting practice. The issue is one of formulating and addressing important research questions that capture the attention and motivation of scholars and practitioners alike in the merits of studying them” (van de Ven, 1992: 181, emphasis in original).

Second, a narrative style in the final case reports should not only be permitted, but also actively encouraged, since it is critical in making tacit knowledge explicit. Managers who are used to writing reports or executive summaries in an objective style may need encouragement to adopt this style. The resulting process of ‘sense-making’ (Weick, 1995) depends on the use of language to convey and communicate the meanings assigned to various aspects of the case. Viewing the case study as a narrative, can help explore the construction of the shared meanings that appear in the stories (Czarniawska, 1997). Without the narrative element, the contribution of co-operative case writing to making tacit knowledge explicit are seriously compromised. Indeed, the narrative style goes beyond making tacit knowledge explicit; it can also give rise to new knowledge. The interplay between tacit and explicit knowledge during

discussion can lead to what Nonaka calls 'genuine knowledge creation' (Nonaka and Takeuchi, 1995).

Third, co-operative case writing requires collaboration not only amongst individuals in the different functional groups, but also at corporate level. Companies must be prepared to disclose, publicly broadcast, and openly discuss the challenges and experiences of the past if they are to learn from them. The proposed case-writing method can only achieve its full potential in companies where this tolerance is present, and where there is a genuine desire to profit from experience. This extends findings by other authors, who argue that case writing may prove a useful tool for promoting learning at different levels in the organization (Argyris, 1982, 1997; Daft & Huber, 1987). In a co-operative case writing approach as shown here we can find a multi-dimensional learning model that allows the observation of an organizational phenomenon on various organizational levels. As such, a social system, i.e. a project team, a corporate unit, or an entire organization can learn, by interaction, reflection and experimenting between researchers and practitioners, by investigating processes, behavior and results (in the sense of 'after action reviews,' Garvin 2001).

### **EXPANDING THE AUDIENCE FOR IMPACTFUL RESEARCH**

Recently, Scandura and Williams, in an extensive survey of current practices and trends in management research concluded by observing: "It may be that without rigor, relevance in management research cannot be claimed" (Scandura and Williams, 2000: 1263). Our findings suggest that, in co-operative case writing, the opposite may also be true. We propose that research can be impactful from both academic and practitioner perspectives. The most important criteria of practical relevance and theoretical significance should be seen as mutually reinforcing within the framework of co-operative case writing.

Consider, for example, a case study on organizational change. Practitioners and academics discuss rival perspectives when drafting the case study, which ensures both non-obviousness of the research findings, and also enhances construct validity by introducing researcher triangulation. Similarly, the discussions between managers and academics during the writing process are likely to benefit goal relevance by enhancing the correspondence between the contemplated measures to be implemented, and their effect on strategic change. Likewise, such discussions help to rule out spurious relationships between independent and dependent variable, thereby enhancing internal validity. Writing and comparing several case studies of different aspects of the change initiative within the researched organization can benefit the generalizability of the research findings, and seems conducive to the sharing of knowledge between departments or organizational units where such change initiatives evolve. Finally, the narrative approach central to co-operative case writing helps making tacit knowledge explicit, and also benefits the reliability of the research findings by making it possible to capture this previously tacit knowledge in the case study protocol and the case study database.

But expanding the audience for impactful research along the practitioner and researcher dimensions may not be enough. What about our students? An equally important audience may be today's students, i.e. tomorrow's practitioners/academics. Davenport and Markus (1999) observe that often, our students cannot use and assign readings produced by our non-academic competitors – when was the last time you successfully assigned articles from the *Academy of Management Review*, *Management Science*, or the *Journal of International Business Studies* in MBA and undergraduate courses?

By using co-operative case writing, we might be able to shift what Davenport and Markus (1999) called the ‘impact frontier,’ in which researchers have the potential to contribute to both business and academic audiences (see Figure 1). In terms of the impact frontier, an article using the co-operative case writing method published in a journal emphasizing criteria of theoretical significance (say, the Academy of Management Review) may have the same ‘impact quotient’ (if on different dimensions) than one published in a journal valuing criteria of practical relevance (e.g. Harvard Business Review). By using the framework proposed here, we can choose how to position the research for the kind of impact we hope to have for today’s and tomorrow’s practitioners and academics.

---INSERT FIGURE 1 ABOUT HERE---

### **HAVE WE MET THE ENEMY?**

What will it really take to make management research more impactful? Davenport and Markus (1999) approach the issue of rigor versus relevance from three different perspectives. According to them, *evaluation criteria* and *approaches* used by academic and practitioner audiences need to be aligned. For example, while perhaps much practitioner-oriented research, e.g. by the big consulting firms or non-profit research institutes such as the Santa Fe or the Woodside Institute may lack theoretical significance, there could be much worth emulating in these worlds today. Indeed, consultants may often be faster at identifying practitioner’s needs for research, and they are often more directly attuned to the production of good, (if not theoretically significant) research as key success factors, and – one may say – as the only way to stay in the business. The matching of evaluation criteria, and the approach of co-operative case writing proposed in this article may be a first step in further bringing the two worlds a little closer together.

A third perspective proposed by Davenport and Markus (1999) is *publication outlets*. Management research as an applied discipline may be no less relevant than other applied disciplines such as medicine or law. In fact, we would do better to emulate colleagues in medicine and law, where professors actually do have clinical practices and defend clients in lawsuits – and actually do read academic journals. To us, the solution is clear: not only must management scholars focus on publishing readable applied research in academic journals, we must also support outlets that today’s (and tomorrow’s) practitioners read that publish research that they value. Davenport and Markus have recommended that academics should support such journals by submitting research to them and by counting them heavily in promotion and tenure evaluations. At the moment, this is not generally done, we often disparage these outlets and discount their articles (and the research approaches taken) in faculty personnel cases. Such behavior undermines the very goal of management as an applied discipline.

We propose a research approach – co-operative case writing – that works for us. Clearly, a major limitation of our argument is that we focused on only one, specific, qualitative research methodology. Clearly there are other research methodologies - both qualitative and quantitative - that could be scrutinized in terms of the practical relevance and theoretical significance of the research findings they yield. Indeed, by limiting ourselves to one, specific, framework, we intend to open up the possibility for additional frameworks to be developed. Thomas and Tymon (1982), based on an extensive review of organizational behavior, organization theory, and organization development literature have provided a generic set of necessary properties of practically relevant research that could guide such further work.



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## APPENDICES

### Appendix 1: Research Methodology

The research reported here is based on a longitudinal, multi-stage, nested design within one corporate setting (e.g. Burgelman, 2002; Yin, 1994; Eisenhardt, 1989). The research setting was the Siemens company. Siemens employs about 450.000 people in 190 countries, and delivers solutions in a wide variety of industries within the overall electrical engineering and electronics industry, including telephony, mobile telephony, household appliances, transportation, medical systems, automation, and business consulting. The primary level of analysis for formulating the propositions was the corporate level; the secondary level of analysis was the business unit level. In line with the recommendations by methodology scholars, we have found it useful to concentrate on specific projects within the corporate setting as the units of analysis, rather than simply focusing on the overall organization (Yin, 1994, Stake, 1995; Burgelman, 2002). Initial discussions with the Siemens company led to the agreement that the company's single-largest knowledge management initiative with its constituent sub-initiatives be chosen as the units of analysis. In line with the approach of 'theoretical sampling' (e.g. Denzin and Lincoln, 1994; Huberman and Miles, 1984) the selection criteria to derive the cases were (a) prominence within the overall corporate context, (b) cases selected constituted 'extreme cases' in that a representative sample of successful and fledgling initiatives was sought, and (c) a representative selection of the industries Siemens was operating in was sought. The sub-cases studied therefore constituted the individual units of analysis within the overall corporate context. This approach enabled extensive within-case and between-case analysis, which Eisenhardt describes as a key ingredient in good quality case study research (Eisenhardt, 1989: 539-540). A total of 18 case studies was analyzed in this manner. Table 1 provides an overview of these case studies in terms of their departmental affiliation, the topic area of each case, and the time period in which the cases were produced.

---TABLE 1 ABOUT HERE---

As Table 1 above shows, the research was carried out continuously over a period of two years, but involved three stages of intensive data collection (spring 2000-fall 2000, spring 2001 until winter 2001, and spring 2002).

*Phase 1* (spring 2000-fall 2000): After an initial discussion with the Chief Knowledge officer, a provisional set of cases was agreed upon that would give a comprehensive overview of the portfolio of the individual projects (or units of analysis) comprising the overall corporate knowledge management initiative. The initial shortlist of 11 cases was reduced to 8 case studies, in order to avoid overlaps. Thus, the majority the case studies reported here was produced in phase one.

*Phase 2* (spring 2001-winter 2001): To keep abreast of changes in Siemens' portfolio of knowledge management initiatives, 4 of the cases produced in phase one of the field study were updated, and 6 new case studies were added.

*Phase 3* (spring 2002): The last phase of the research was characterized by consolidation and further examination of the existing cases. In the last phase of the field research, 4 cases were added to the portfolio.

Data collection was done by formal interviews and informal discussions with Siemens managers. Interviews were conducted in part by the authors of this article and in part by the 44 Siemens case writers participating in the study. The formal interviews lasted between 20 minutes and 190 minutes, with most lasting for 60 minutes. Interviews with a 'new' interviewee were semi-structured. Follow-up interviews were structured, for clarification about key events, people and issues identified. A major benefit arising from this approach was that it was made possible to interview more people than originally planned, since respondents often mentioned names of relevant actors and were willing to help set up an interview with them. It was thus possible to interview the relevant actors in each unit of analysis, thereby enabling us to record the convergence and divergence in their views on various key problems and critical situations throughout the 18 cases studied for this paper.

To arrive at our propositions, we used grounded theorizing (Glaser and Strauss, 1967). Grounded theorizing refers to inductively gaining theoretical insights by comparative analysis in an iterative mode, going back and forth between the existing literature and the empirical data. In the present study, the case evidence was examined, theoretical propositions were revised, and the evidence was once again examined from a new perspective in an iterative mode. To illustrate, interview and theoretical data were compared, and additional interviews were added until the same information was repeated again and again, suggesting that analysis had reached what Glaser and Strauss referred to as theoretical saturation (Glaser and Strauss, 1967, cited in Burgelman, 1994: 483).

## FIGURES AND TABLES

Table 1: Overview of case studies examined within the overall context.

Area	Topic of case study	Time schedule of research
Corporate	Knowledge management in the strategy process	Spring 2002
	Building a community of knowledge managers	Spring 2001-winter 2001
	Best practice marketplace	Spring 2001-winter 2001
Telecommunications	Intra-net based knowledge sharing platform for sales personnel	Spring 2000-winter 2000
	Yellow-pages approach for sales personnel	Spring 2000-winter 2000
	Development of a 'miles and more' system for rewarding knowledge sharing	Spring 2001-winter 2001
	Knowledge management and organizational change	Spring 2000-winter 2002
E-business transformation	Managing online knowledge exchange with customers	Spring 2001-winter 2001
	The role of knowledge management in e-business transformation	Spring 2002
Business consulting	Knowledge management in consulting industry	Spring 2000-winter 2000
	Selling in-house knowledge management solutions as a service to corporate clients	Spring 2002
Education and training	E-learning	Spring 2001-winter 2001
	Management learning and knowledge management	Spring 2002
	A university-based degree in knowledge management expertise	Spring 2000-winter 2000
Medical systems	Creating a filmless hospital through knowledge management	Spring 2000-winter 2000
	Knowledge management in tending to patients	Spring 2001-winter 2001
Semi-conductor	Sharing of knowledge in the chip development process	Spring 2000-winter 2000
Mergers and Acquisitions		
	Knowledge exchange in post-merger integration	Spring 2000-winter 2000

Figure 1: Shifting the impact frontier

# *Cahiers de recherche*

## *HEC Genève*

### **2002**

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- 2002.03    Séverine CAUCHIE, Martin HOESLI, Dušan ISAKOV  
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- 2002.04    Ana C. CEBRIAN, Michel DENUIT, Olivier SCAILLET  
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- 2002.06    Bernard DUBOIS, Sandor CZELLAR  
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